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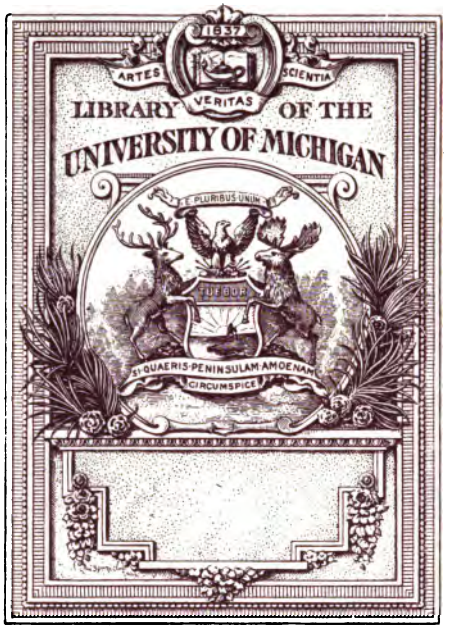
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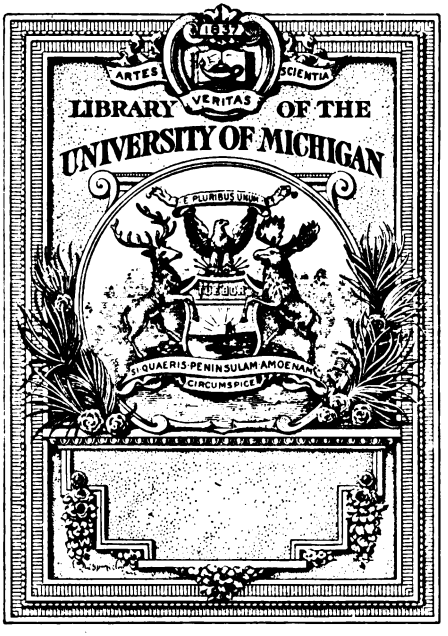
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TRANSACTIONS

OF THE

THIRTY-EIGHTH ANNUAL MEETING

OF THE

Ohio State Medical Society,

HELD AT

CLEVELAND,

June 5th, 1883.

COLUMBUS, O.:
GAZETTE PRINTING HOUSE.
1884.

THIRTY-EIGHTH ANNUAL MEETING

OF THE

Ohio State Medical Society,

HELD AT

Cleveland, June 5th, 1883.

The Ohio State Medical Society met at Frohsinn Hall, Cleveland, at 8:30 A. M., June 5, the President, Dr. C. P. Landon, in the chair.

The address of welcome was delivered by Dr. A. C. Miller, of Cleveland, as follows:

Mr. President and Members of the Ohio State Medical Society:

We read that a long time ago it was a custom in the East, when some distinguished body of men were invited to meet in some particular city, that they were met on the way by a deputation sent by the authorities to salute and welcome them, loaded with presents of gold, silver, precious stones, sheep, oxen and camels; and if such formalities were not extended, it was an indication that their presence was not wanted, and their visit to be no longer entertained.

In imitation of that custom, I have been entrusted with that very pleasant mission by the Executive Committee of our State Society, and meet you this morning, not with gold and silver, cattle and camels, but with outstretched arr to welcome you to our city, our homes, and our hearts.

178651

In saluting you this morning, I cannot forget the sacrifice you have made, and the responsibilites incurred, by laying aside the crucible and mortar, the catlin and saw, to spend a short season in social intercourse with your medical brethren, renewing old acquaintances and making new ones. I cannot forget the many who will miss you when the messenger returns and announces your absence, and the real anguish of the disappointed; but it is meet that these things should be. It is a duty we owe to our profession, our patients, and ourselves, and I trust that we are all prepared by another year of labor and experience to add some element to the annual growth of our profession, some new principle for its perpetuation. These annual gatherings should be family reunions, where we can unfold our volume of perplexities to each other, seek advice, and take counsel from those whose ripe years and superior judgment have made them distinguished planets in the great constellation of our noble profession.

In looking over this assembly, my attention is called to the vacant seats which were once occupied by great and noble members of this society, whose kind admonition and precepts were the rule and guide of the student's life, their integrity and social standing the emulation of every ambitious physician. I cannot but recall the old and familiar faces of those who have been called upon since my connection with this society in 1858, to lay down their professional armor, to join "the innumerable caravan that moves to that mysterious realm," and have taken their chambers in the silent halls of death. One by one, like the leaves, they have fallen, and year after year they come to us no more. Since our last meeting, another of the venerable leading spirits of our number, who at our last meeting took an active part in its deliberations, has been called from the harvest of his labors, bearing his sheaves with him. Prof. Mussey, the noble son of a noble sire, sleeps the sleep that knows no waking.

Our present meeting is one which we have all looked forward to with more than ordinary interest. We have in our midst this morning, not only the great professional lights of our own state, but a representation from every state in the union. This morning, at Case Hall, convenes our *Alma Mater*, the largest representative body of medical men in the world, to which belong the great physicians of

the Nation. Many of them are there present, and in acting out the spirit of the resolution passed at our last meeting, each of us will be, by invitation, made a part of that body, and entitled to participation in its labors. In welcoming you to our city, you will pardon me for calling your attention to what is the pride of every Clevelander, our wide and shady thoroughfares, our beautiful lawns, our palatial residences, and generous hearted citizens. Through the prosperity of our people, Cleveland has been enabled to entertain more guests in the past five years than perhaps any other city, large or small, in the United States. What we lack in hotel accommodations is made up by the generosity of our citizens, whose doors are either open, or the key lies under the rug. Many of you will notice the numerous changes wrought in our business and manufacturing districts since our last meeting in this city, and an examination of our last directory will show you that our population has been increased at the rate of 10,000 in the last year. Our commerce has outgrown our wharves; and our merchandise, our accommodations. Every year our city is becoming more metropolitan, so that from the conventional pork and beans of our forefathers we are now able to furnish the staples of life to the representatives of all nations who come among us.

Gentlemen of the Society, while you sojourn with us, be ever ready to make your wants known, "ask and ye shall receive, seek and ye shall find"; there is no use in knocking, our doors are open. Welcome.

The Committee of Arrangements, by its Chairman, Dr. R. A. Vance, of Cleveland, presented the following report, which was adopted:

The Committee of Arrangements recommend—

1. That a committee be appointed to act in the absence of the Society. Thus members can pay up their dues, and applicants for membership file their papers, and all become members of the American Medical Association.

2. That the Society adjourn for one year, the old officers to hold over.

3. That we then adjourn.

On motion of Dr. R. A. Vance, it was voted that the President be permitted to publish his Annual Address.

On motion of Dr. E. H. Hyatt, it was voted that the Society meet in Columbus one year from date.

The President appointed Drs. G. A. Collamore, W. B. Scranton and E. H. Hyatt, members of a committee to represent the Society.

On motion of Dr. J. F. Baldwin, the vote to hold the next meeting one year from date was reconsidered, and the committee just named was empowered to fix the date of next meeting.

On motion of Dr. J. F. Baldwin, amended by Dr. J. W. Russell, it was voted that no assessments be made for the next year, and that applicants for membership apply at once to the Committee on Admissions.

The President appointed Dr. R. C. S. Reed, *vice* W. H. Mussey, deceased, and Dr. J. O. Dawson, *vice* J. B. Thompson, absent, as members of the Committee on Admissions.

Adjourned for one year.

GEO. A. COLLAMORE, M. D.,
Secretary.

TRANSACTIONS

OF THE

THIRTY-NINTH ANNUAL MEETING

OF THE

Ohio State Medical Society,

HELD AT

COLUMBUS,

June 10th, 11th and 12th, 1884.

COLUMBUS, O.:
GAZETTE PRINTING HOUSE.
1884.

OFFICERS FOR 1884-5.

PRESIDENT.

J. C. REEVE, M. D., ... Dayton.

VICE-PRESIDENTS.

E. B. PRATT, M. D., ... Mt. Sterling.
B. W. DAVIS, M. D., ... Marion.
D. J. MERRIMAN, M. D., ... Painesville.
J. F. BALDWIN, M. D., ... Columbus.

SECRETARY.

GEO. A. COLLAMORE, M. D., ... Toledo.

ASSISTANT SECRETARY.

E. C. BRUSH, M. D., ... Zanesville.

TREASURER AND LIBRARIAN.

T. W. JONES, M. D., ... Columbus.

COMMITTEES.

FINANCE.

H. J. SHARP, M. D., DAVIS HALDERMAN, M. D.,
G. S. FRANKLIN, M. D., GEO. MITCHELL, M. D.
S. S. THORN, M. D.

ETHICS.

R. H. REED, M. D., JNO. A. MURPHY, M. D.,
W. J. SCOTT, M. D., W. W. JONES, M. D.,
H. CULBERTSON, M. D.

PUBLICATION.

W. J. CONKLIN, M. D., J. C. CULBERTSON, M. D.,
J. F. BALDWIN, M. D., J. H. LOWMAN, M. D.,
W. H. H. NASH, M. D.

LEGISLATION.

H. J. HERRICK, M. D., ENOCH PEARCE, M. D.,
D. N. KINSMAN, M. D., TOLAND JONES, M. D.,
H. J. DONAHOE, M. D.

ADMISSIONS.

C. A. L. REED, M. D., J. B. THOMPSON, M. D.,
S. W. FOWLER, M. D., J. N. BEACH, M. D.,
P. P. POMERINE, M. D.

THIRTY-NINTH ANNUAL MEETING

OF THE

Ohio State Medical Society,

HELD AT

Columbus, June 10th, 11th and 12th, 1884.

The Society was called to order at 2 o'clock P. M., June 10th, by the President, Dr. C. P. Landon.

Prayer was offered by the Rev. Edward Anderson.

The President briefly addressed the Society, as follows:

Fellows of the Ohio State Medical Society:

Because of your kindness and generosity, I have the honor of standing before you to-day. This is the first opportunity presented me to acknowledge in person the sense of my profound recognition and appreciation of the distinction.

Fellows, I thank you, and there are those I love, not here to-day, who have thanked you from the fullness of warm hearts for this act of yours. I am the more grateful because of the reflection of how many worthy and able men stand and labor in your organization.

Gentlemen, that I shall bring my best ability and endeavors to serve you faithfully and impartially, you are, I feel, assured. That I shall receive your kindly and generous helps and considerate forbearance, I am assured. I appreciate that the duties are responsible and delicate. I hope to meet your expectations. It has been the effort of your

officers to present you with a programme worthy of your Society, and it is their hope that they have succeeded.

Gentlemen, after an interval of two years, you have come together refreshed, and, doubtless, with renewed energy and purpose. While, in the interval, you have done good work in your respective district, county and local organizations, you return to the parent Society with the winnowed grains of your toil and with well digested material, which will be fruitful of interest and profit.

Gentlemen, there will be presented at this session some questions of paramount importance and of vital interest to the general public, outside of the purely scientific presentation of the different departments of your art. To these I invite your careful, loyal, earnest and faithful attention.

I sincerely trust, gentlemen, that you may have a session of great interest, resulting in much good, and that, when closed, you will return to your homes with renewed faith and energy and devotion to your profession, and with a quickened purpose to labor for mankind. I beg you to bear with you my profound feeling of obligation.

The minutes of the meeting of 1883 were read and approved.

The Committee of Arrangements made a report, which was adopted.

The President appointed the following members to fill vacancies in committees:

In Committee on Admissions and Medical Societies—Dr. C. A. L. Reed, *vice* Dr. W. H. Mussey, *deceased;* Dr. A. T. Quinn, *vice* Dr. N. H. Sidwell, *deceased;* Dr. J. B. Schueller, *vice* Dr. J. B. Thompson, *absent,* and Dr. S. W. Fowler, *vice* Dr. J. N. Beach, *absent.*

In Committee on Finance—Dr. J. C. Reeve, *vice* Dr. John Davis, *deceased;* Dr. R. L. Sweeney, *vice* Dr. Geo. Mitchell, *absent,* and Dr. J. O. Dawson, *vice* Dr. S. S. Thorn, *absent.*

In Committee on Ethics—Dr. E. H. Hyatt, *vice* Dr. J. W. Scott, *absent;* Dr. H. J. Sharp, *vice* Dr. J. A. Murphy,

absent; Dr. J. L. Drake, *vice* Dr. W. W. Jones, *absent;* Dr. W. H. H. Nash, *vice* Dr. H. Culbertson, *absent,* and Dr. W. D. Scarff, *vice* Dr. J. C. Hubbard, *deceased.*

On motion of Dr. E. H. Hyatt, the matter in controversy by the Delaware County Medical Societies, was referred to the Committee on Admissions and Medical Societies.

Dr. H. J. Sharp offered the following resolution, which was adopted:

"WHEREAS, There are now pending in the two Houses of the Legislature different bills, having for their purpose the establishment of State Boards of Health and Medical Examiners, be it

Resolved, That a committee of five be appointed, to whom these several bills be committed for revision, and they shall report such revised bill for adoption by this Society on Wednesday morning."

The President appointed Drs. H. J. Sharp, J. M. Weaver, R. Harvey Reed, H. Z. Gill and J. F. Baldwin members of this committee.

REPORT OF THE SECRETARY FOR THE YEAR ENDING JUNE 10, 1884.

Mr. President and Gentlemen:

The adoption of the new Constitution of this Society at its meeting in 1882, has markedly increased the labors of the Secretary, especially in respect to the relations of the State Society to its Auxiliary Societies. It is the first attempt to establish any other than a formal relation between them. Section 4, of Article IV, requires the Secretary of each Auxiliary Society to furnish a catalogue of his Society to the Secretary of this Society, "not less than one month preceding each annual meeting of this Society." The effect of failure in this being, that "none of its members shall be allowed to participate in the business of this Society, or be entitled to any of its rights of privileges, until such Society shall have purged itself of the contempt."

By correspondence with many members of this Society and other physicians in all parts of the State, it appears

that the following Societies, borne on the last published list of Auxiliary Societies, have abandoned their organization and are no longer in existence, viz:

Athens, Morgan and Washington Medical Association.
Belmont County Medical Society.
Cleveland Academy of Medicine.
Columbus Academy of Medicine.
Columbus Pathological Society.
Delaware Medical Society.
Delaware Medical Institute.
Drake Medical Society.
Guernsey County Medical Society.
Hamilton County Medical Society.
Hardin County Medical Society.
Lancaster Medical Institute.
Medico-Chi. Society of N. E. Ohio.
Medina County Medical Lyceum.
Medical Association of Adams, Brown and Clermont Counties.
Preble County Medical Society.
Putnam County Medical Society.
Richland County Medical and Surgical Society.
Scioto County Medical Society.
Union Medical Society of Alliance.
Zanesville Academy of Medicine.

I therefore recommend, if no objection appears to the contrary, that these Societies be dropped from the roll of Auxiliary Societies.

The following Societies forwarded catalogues last year, but have not done so this year, viz:

Athens County Medical Society.
Knox County Medical Society.
Lawrence County Medical Society.
Licking County Medical Society.
Summit County Medical Society.
Wood County Medical Society.

The following Societies have not furnished catalogues in 1883 or 1884, and I am unable to determine their exact condition, viz:

Allen County Medical Society.
Greene County Medical Society.
Hocking Valley Medical Society.

Proposals to become Auxiliary Societies have been received from the Gallia County Medical Society and Hardin County Medical Association, with copy of Constitution and list of members enclosed.

In the last published list of members of this Society the number is given as 540, of whom 13 were non-residents. At the last meeting in Cleveland there were 55 applications for membership, which were completed up to a reference to the Committee on Admissions, in whose hands the papers now are.

Since the meeting of 1882, the Secretary has been informed of the death of the following members: W. B. Carson, Bucyrus; John Davis, Dayton; J. C. Hubbard, Ashtabula; J. O. Kemp, Dayton; A. G. Leland, Trumbull; A. C. McLaughlin, Tremont City; J. A. McFarland, Tiffin; N. H. Sidwell, Wilmington; H. Senseman, Tremont City; W. H. Mussey, Cincinnati, and Benj. Tappan, Steubenville.

Article IV, Section 5, makes it the duty of the Secretary of Auxiliary Societies "to transmit to the Secretary of this Society a suitable obituary notice for publication." In accordance with this requirement obituary notices of the above deceased have been received in the case of all except Drs. Carson, Hubbard, Kemp and Mussey.

The deaths of honorary members, not previously noted, are of H. H. Childs, Pittsfield, Mass., G. S. B. Hempstead, Portsmouth, J. Knight, New Haven, Ct., Willard Parker, New York City, and L. W. Moe, Ottawa.

If there are any other members of the Society deceased, the Secretary would be pleased to be informed.

As by the present Constitution all bills against the Society must be countersigned by the Secretary before payment, I report the following as signed by me since the meeting of 1882:

1882. July 7. Rent of hall for meeting as per Report of Executive Committee	$30 00
August 12. Photo engravings, approved by Publication Com.	33 00
November 6. Printing	16 00
Transactions and 500 extra copies of Constitution approved by same	567 25
1883. June 5. Salary of Treasurer	75 00
" " " " Secretary	75 00
Bill of printing, postage, and other necessary expenses incurred by Secretary, as per schedule annexed to June, 1883	33 41

The account for necessary expenses by the Secretary since the last meeting is as follows:

For postage, postal cards and envelopes	$15 22
For printing and paper, 9.50, 3.25	12 75
Repairs to Gavel	10
	$28 07

One thousand copies of the announcement of the 39th meeting of this Society were distributed.

Since the publication of the programme the following titles of papers, to be read at this meeting, have been received:

"Unusual Manifestations of Malarial Poisoning," Starling Loving, M. D., Columbus.

"Notes on Chronic Cervical Catarrh," C. A. L. Reed, M. D., Hamilton.

"Congenital Phymosis," W. J. Conklin, M. D., Dayton.

"Foreign Bodies in the Urethra," N. P. Dandridge, M. D., Cincinnati.

"Restoring the Ruptured Perineum," H. Z. Gill, M. D., Cleveland.

"Historical and Critical Notes on the Management of the Third Stage of Labor," J. C. Reeve, M. D., Dayton.

The Secretary is in receipt of charges preferred by the Tuscarawas County Medical Society against Dr. E. C. Lewis, a member of this Society. In accordance with Section 4, of Article VIII of the Constitution, the Secretary has furnished the accused with a copy of the charge, and has cited both parties to appear before the Committee on Ethics this day (June 10), for hearing.

Respectfully submitted,

G. A. COLLAMORE, *Secretary.*

The Committee on Publication presented the following report, which was ordered to be placed on file:

The Committee met at the office of the Chairman, June 26, 1882, at 3 P. M.

The bids for printing the *Transactions* were opened, and the bid of the GAZETTE Co. being the lowest, the chairman was instructed to enter into a contract with them.

The various papers presented were then considered, and all ordered published, subject to such curtailment as the chairman might see fit to make.

The chairman offered the following propositions, which were unanimously approved of and adopted:

1. The committee will give each author fifty neatly bound re-prints of his article, free of charge.

2. It will furnish such engravings as may be necessary to illustrate any paper, provided the author will provide the drawings so executed as to be ready for the process of photo-engraving.

3. The author of any paper read before the Society, and approved by this Committee, may publish the same in any medical journal he selects, with the words added—"Read before the Ohio State Medical Society," *provided*, he transmit to the chairman of this Committee, for publication in the *Transactions*, a copy of his paper within thirty days after adjournment.

Committee adjourned.

J. F. BALDWIN, *Chairman.*

Dr. D. N. Kinsman, Chairman of Committee on Medical Legislation, made a verbal report.

The report from delegates to the American Medical Association was made by Dr. A. Dunlap, and discussed by Dr. J. C. Reeve, and, on invitation of the Society, by Dr. R. S. Sutton, of Pittsburg, Pa.

Dr. R. Frailey Wark, of Ontario, read a paper on "The Races."

Society adjourned to 8 o'clock P. M.

EVENING SESSION.

The Society was called to order by Vice President E. Sinnett, M. D.

The following resolution was presented by Dr. H. J. Sharp, who moved its adoption:

Resolved, That the public good and the higher interests of the Medical Profession would be promoted by the establishment of a State Board of Medical Examiners; that such Board shall be independent of all Medical Schools, and be empowered to examine and pass upon the moral fitness and

literary and medical attainments of all applicants for admission to the practice of medicine, and to grant license to practice medicine in the State of Ohio, to such only as shall have passed a satisfactory examination before said Board; that Medical Schools shall continue their functions of teaching and conferring degrees of M. D. only, with no powers whatever to grant license to their graduates, admitting them to the practice of medicine.

The motion was seconded, and Dr. Sharp presented a written argument in favor of the resolution.

[See body of *Transactions.*]

The resolution was discussed by Drs. H. J. Herrick, J. W. Hamilton, W. M. Beach, X. C. Scott and J. C. Reeve, and the bills pending in the Legislature were explained and discussed by Drs. Sherman, W. J. Scott and X. C. Scott.

Society adjourned to 9 o'clock A. M., June 11th.

SECOND DAY—MORNING SESSION.

The resolution presented by Dr. H. J. Sharp, relative to the establishment of a State Board of Medical Examiners, was discussed by Drs. T. A. Reamy, J. M. Weaver, and others, and on motion, the resolution was adopted.

Dr. Sharp, Chairman of Committee on Medical Bills, presented the following revised bill for consideration:

AN ACT

To establish a Medical Board of Examiners and Licensers, and regulating the practice of Medicine and Surgery in the State of Ohio, and defining the duties and powers of such Board.

SECTION 1. *Be it enacted by the General Assembly of the State of Ohio,* That there shall be appointed by the Governor a State Board of Medical Examiners in this State, con-

sisting of nine reputable physicians, who shall be graduates of legal Medical Colleges, and who have practiced medicine or surgery for not less than ten years, but none of whom shall be connected in any manner with any Medical School or College; provided, that in the appointment the several systems of medical practice recognized by the three State Medical Societies shall be in proper proportion.

SEC. 2. Of the nine members of said Board, three shall serve, in the first instance, for three years, three for four years, and three for five years. This period of service shall be determined by lot. All appointments made in said Board of Examiners, at the expiration of the several terms fixed above, shall be uniformly made for the period of five years each. All appointments shall be made, and all vacancies occurring in said Board, from whatever cause, shall be filled without delay, by the Governor, from fifteen persons nominated by each of the several State Medical Societies, (in case such nomination shall be made) of a practitioner of the system of practice that had previously been represented by the seat so vacated.

SEC. 3. The persons so appointed shall take the oath of office prescribed by the seventh Section of the fifteenth Article of the Constitution of the State, before entering upon the duties of their office, and file a certificate of their having done so with the Secretary of State.

SEC. 4. The said Board shall, on a day to be fixed by them, in every two years, elect from their own number a President and Secretary, who shall hold their offices for the term of two years, and until their successors are appointed or electcd, and enter upon the duties of their offices. The said Board shall be a Corporation, by the name and style of "State Board of Medical Examiners and Licensers of Ohio," and have and use a common seal, and as such corporation may sue and be sued, contract and be contracted with, plead and be impleaded, to the extent to enable it to carry out the powers conferred upon said Board by said Act. Said Board may make and adopt all necessary rules und regulations and by-laws, not inconsistent with the Constitution and laws of this State or of the United States, to enable it to perform its duties and transact its business under the provisions of this act. A majority of said Board shall constitute a quorum for the transaction of

business. A meeting of the Board may be called by the President or any three members thereof.

SEC. 5. The said Medical Board shall examine all applicants for license to practice medicine or surgery in this State. They shall meet quarterly, on the second Tuesday in January, April, July and October, and at such meetings shall faithfully examine all candidates referred to them for that purpose by the President of said Board, and the Secretary shall keep a detailed report in writing of all questions and answers of each Examination, together with a separate opinion of each Examiner as to the qualifications and merits of the candidate in each case. The examinations shall be conducted in writing, except clinical, which may be oral; the President and Secretary of the Board shall have authority to administer oaths, and the Board to take testimony in all matters relating to its duties.

SEC. 6. Such examinations shall be in hygiene, anatomy, physiology, histology, pathology, principles and practice of medicine, chemistry, surgery, obstetrics, materia medica and therapeutics, and such other branches in the several departments of Medical Science as said Board may agree upon. The questions forming such examination shall be the same for each class of candidates offering themselves, with the exception of principles and practice of medicine and therapeutics, in which branches the questions for each candidate shall be prepared by the representative in the Board of Examiners of the system of practice to which such candidates wish to be licensed.

SEC. 7. The said reports and action of the Examiners shall forever be a part of the Public Records of said Board.

SEC. 8. Any person, on paying twenty-five dollars into the Treasury of the State of Ohio, and on presenting a receipt for the same to, and applying to the Secretary of the Board for the aforesaid examination, shall receive an order addressed to the aforesaid Medical Board, instructing them to examine the candidate at the next quarterly examination, providing proof satisfactory to the President is first given, that the candidate is over twenty-one years of age, of good moral character, and has received a diploma issued to him or her, conferring on him or her the degree of doctor of medicine, from some legally incorporated Medical College held to be in good standing by said Medical Board; and should any candidate fail, he shall have the privilege of appearing

again before the Board, at the next meeting, without any additional fee.

SEC. 9. The President and Secretary of said Board, after finding that seven members of said Board have voted in favor of such candidate, shall issue to him or her a license to practice medicine and surgery in the State of Ohio.

Said Medical Board may refuse to recommend a license to individuals guilty of unprofessional or dishonorable conduct, and they may revoke a license for like cause, upon a unanimous vote, after giving the accused an opportunity to be heard in his or her defense.

SEC. 10. The Medical Board shall establish rules and regulations as they may deem necessary to insure the faithful execution of this Act.

SEC. 11. On or before the first day of July, A. D. 1885, every person who is a graduate of a reputable Medical College, or legal practitioner, or has complied with Sections eight and nine of this act, shall, before continuing or commencing to practice, register in the Probate Judge's office, in a book kept by said Judge for such purpose, where he or she practices or intends to practice medicine or surgery, his or her name, residence and place and date of birth, together with the date of his or her diploma, and by what institution granted, with his or her license to practice medicine or surgery within this State; at the same time the person registering (unless a graduate in medicine and surgery of some reputable Medical School or College, or legal practitioner practicing medicine or surgery at the time of the passage of this Act, within the State of Ohio), shall exhibit both license and diploma herein required to the Probate Judge, and all persons shall subscribe and verify by oath or affirmation, before a person duly qualified to administer oaths under the laws of this State, an affidavit containing a plain statement of all the facts as aforesaid, including his or her age, and shall file said affidavit and copy of said diploma with said Probate Judge. The person so registering shall pay to the Probate Judge one dollar, of which sum the said Probate Judge shall receive fifty cents for such registration and other duties prescribed in this Chapter, and the remaining fifty cents shall be paid over by said Judge to the Treasurer of the State of Ohio, within thirty days after its receipt, for the benefit of the Medical Board. Every graduate in medicine and surgery of any

reputable medical school or legal practitioner in this State, at the time of the passage of this Act, shall register and comply with all the requirements of this Chapter. except producing a license from the State Board, and every person desiring to practice medicine or surgery after the passage of this Act, who is not a graduate in medicine or surgery of some reputable Medical School, or a legal practitioner practicing medicine or surgery in this State, at the time of its passage, must appear before the Medical Board of Examiners and obtain a license, as is provided in Sections eight and nine of this act. Nothing in this act shall be so construed as to prohibit medical consultation in different counties in the State, between legally qualified and registered physicians of this and any other State.

SEC. 12. A person who shall willfully swear falsely to any statement contained in the affidavit required by Section eleven of this act, shall be deemed guilty of and subject to conviction and punishment for perjury, and any person or persons who violate any other of the provisions of this act, or who shall practice medicine or surgery in this State, under cover of a diploma or certificate unlawfully issued and illegally obtained, or without a license, as provided for in this act, shall be guilty of a misdemeanor, and on conviction thereof shall be punished by a fine of not less than one hundred nor more than five hundred dollars for the first offiense, and for each subsequent offense by a fine as aforesaid, and by imprisonment not less than thirty days nor more than one year in the county jail, or both. The fine, when collected, shall be paid to the Treasurer of the State for the benefit of the Medical Board.

SEC. 13. For the purpose of this Act, the words "practice medicine or surgery" shall mean to annex the letters M. D. to one's name, or to suggest, recommend, prescribe, direct or employ, as a matter of business, or for a fee, for the use of any person, any drug, medicine, appliance, apparatus, or other agency, whether material or not material, for the treatment, cure, relief or palliation of any real or supposed ailment or disease of mind or body, or for the treatment, cure or relief of any wound, fracture or bodily injury or infirmity or deformity. And for the purpose of this Act, the words Legal Practitioner shall mean one who has been reputably engaged in the practice of medicine or surgery in

this State for ten consecutive years last past, at the time of the passage of this Act.

SEC. 14. The money paid into the State Treasury under the provisions of this Chapter, shall be appropriated for and assist in defraying the expenses incurred under the provisions of this act.

SEC. 15. Nothing in this act shall apply to commissioned medical officers of the United States Army or Navy, or of the United States Marine Hospital Service, nor to any of the members of the house-staff of any legally incorporated hospital during their term of service as such.

SEC. 16. Annually, on or before the fifteenth day of September, every Probate Judge in the State shall furnish a certified copy of the names, address and residence, place of business, and by what authority they are permitted to practice, of all persons practicing medicine or surgery in his county, not previously reported, to the Secretary of the Medical Board, and said Secretary shall record the same in a book to be kept by him for that purpose.

SEC. 17. The Medical Board shall have the power to strike the name of any practitioner of medicine or surgery, guilty of unprofessional or dishonorable conduct, from the registry list, and to refuse to allow his name to be recorded or to practice medicine or surgery in this State, upon unanimous vote, after giving the accused an opportunity to be heard in his defense.

SEC. 18. The Secretary shall receive a salary to be fixed by the Board. The other members of said Board shall each receive ten dollars per day and necessary expenses, for each day actually and necessarily employed by them in the discharge of the duties of their office. The State Board shall audit all bills made out in due form and verified by the member rendering the service or incurring the expense of traveling in the performance of the duties of his office. Such bills, when approved by the Governor, shall be paid out of the State Treasury.

SEC. 19. The Governor shall remove any member of the Board for unprofessional or dishonorable conduct, upon the recommendation of two-thirds vote of the Board.

SEC. 20. The sum of one thousand dollars per annum, or so much thereof as may be deemed necessary by the Board, is hereby appropriated to meet the necessary and legitimate expenses of the Board, should the fund raised by

the provisions of this Act not be sufficient to meet such expenses.

SEC. 21. No part of this act shall be considered as applying to those practicing Dental Surgery or Dentistry.

SEC. 22. The Adjutant-General shall procure suitable room for the use of the Board at Columbus.

SEC. 23. All other Acts or parts of Acts inconsistent with this act are hereby repealed.

SEC. 24. This Act shall take effect July 1st, A. D. 1885.

Dr. S. Loving moved that the report of the Committee be adopted. Seconded.

Dr. T. A. Reamey offered the following amendment, to be inserted in its proper place:

"*Provided*, That no man shall serve in said Board until he has won his position by a competitive examination made by a committee appointed by this Society; said examination to be conducted orally and in public, at the Capital of the State."

The report was discussed by Drs. Loving, Reamy, Ransohoff, Baldwin, Vance and Sherman, and, on motion of Dr. Herrick, was laid on the table.

The following communication from Dr. J. F. Baldwin was referred to the Finance Committee:

COLUMBUS, OHIO, June 10, 1884.

Mr. President and Members of the Ohio State Medical Society:

In 1878, the undersigned was elected Secretary of your honorable body, the office coming to him without his slightest solicitation or effort.

Annually thereafter he was unanimously, and without opposition, re-elected to the same office, until 1882, at which time, as the result of an unscrupulous and vindictive combination against him, of whose secret machinations he had not the slightest warning, he was defeated by a small majority, having on this, as on all previous occasions, made not the slightest effort to secure the position for which he was nominated.

On the 6th day of August, 1882, a member of this Society published a long and bitter article in the columns of the *Sunday Morning News*, of this city, in which occurs this

passage: "On the 16th of June he [meaning the undersigned] was ousted from his position as Secretary of that Society [meaning your honorable body], and at the same time the Society declined to continue the publication of its annual proceedings through him, for the reason, among other things, that he had failed to render a satisfactory account, although this was not the first time he had failed to distinguish between *meum* and *tuum*."

Now, as the vote above alluded to gives a color of apparent truth to these charges; as these charges have never been retracted, nor their falsity admitted by the author of them; and as great injury and gross injustice have thereby been done the undersigned, he therefore respectfully asks, and, as a simple act of common justice to himself, *demands* that these charges against his character be referred for investigation, and report at this meeting, to the appropriate committee of this Society.

Respectfully submitted,

J. F. BALDWIN, M. D.

Dr. D. N. Kinsman read a "Report on Tuberculosis." Discussed by Drs. H. J. Herrick, R. A. Vance, H. Z. Gill, W. J. Scott and A. Dunlap.

The following telegram was received and read to the Society:

INDIANAPOLIS, IND., June 11.

Dr. C. P. Landon, Prest. Ohio Med. Society, Lyndon Hall:

The Indiana State Medical Society, in thirty-fourth annual session, in behalf of its 73 auxiliaries and 1,300 members, sends greeting to her sister State and Society unitedly. Let us maintain the highest standard of professional excellence.

DR. S. E. MUNFORD, *President.*

On motion of Dr. S. F. Forbes, it was voted that it be placed on the minutes, and the Secretary make a suitable reply.

The Treasurer and Librarian, Dr. T. W. Jones, presented his report as follows, which was referred to the inance Committee:

COLUMBUS, O., June 10, 1884.

As Treasurer, I report as follows:

Balance on hand, June 13, 1882		$949 10
Received as Initiation Fees and dues until Society convened at Cleveland, June 5, 1883		653 00
" Cash, 1 copy Transactions		1 00
" (Unknown member, $3.00).		
" As Initiation Fees and Dues, from date at Cleveland		193 00
" 3 copies Transactions		3 00
		$1,799 10
Amount expended to June 5, 1883, per Cash Book and Vouchers	$875 32	
Amount expended since above date at Cleveland, per Cash Book and Vouchers	122 96—	998 28
Balance on hand		$800 82

I report as Librarian: On hand 127 copies *Transactions*, 1859 to 1880, inclusive; copies *Transactions* 1881 and 1882, 209; Transactions other State Societies, in exchange, about 50 copies; Miscellaneous Journals, &c., quite a number; Constitution and By-Laws, in pamphlet form, 70.

Respectfully,

T. W. JONES.

The Society adjourned to 2 o'clock P. M.

AFTERNOON SESSION.

A communication was read from Dr. L. H. Montgomery, a delegate from the Illinois State Medical Society to this Society.

The President, Dr. C. P. Landon, read his "Annual Address."

The Society then proceeded to the election of Officers, which resulted as follows:

President—J. C. Reeve, Dayton.

Vice Presidents—1st, E. B. Pratt, Mt. Sterling; 2d, B. W. Davis, Marion; 3d, D. J. Merriman, Painesville; 4th, J. F. Baldwin, Columbus.

Secretary—G. A. Collamore, Toledo.

Assistant Secretary—E. C. Brush, Zanesville.

Treasurer and Librarian—T. W. Jones, Columbus.

Committee on Finance—H. J. Sharp, London, 5 *years;* G. S. Franklin, Chillicothe, 4 *years.*

Committee on Ethics—R. H. Reed, Mansfield, 5 *years.*

Committee on Publication — W. J. Conklin, Dayton, 5 *years.*

Committee on Medical Legislation—H. J. Herrick, Cleveland, 5 *years.*

Committee on Admissions and Medical Societies—C. A. L. Reed, Hamilton, 5 *years;* S. W. Fowler, Delaware, 4 *years.*

The following Resolution was presented by Dr. W. Morrow Beach, and adopted:

WHEREAS, Dr. John B. Thompson, of this city, one of the Charter Members of the Ohio State Medical Society, an earnest and efficient worker in its interests for many years, and a gentleman of honorable and conspicuous standing in our profession, is now prostrated by disease, with slight hope for his recovery; therefore be it

Resolved, That the sympathies of this Society be, and are hereby, tendered to him and family, with an assurance of our most profound respect and esteem.

Resolved, That the Secretary be requested to furnish him a copy of the foregoing resolution.

By invitation, Dayton was selected as the place for meeting in 1885.

The Committe on Ethics presented the following report, which was adopted:

To the Ohio State Medical Society:

Your Committee on Ethics beg leave to submit the following report:

The Tuscarawas County Medical Society, auxiliary to the State Society, having preferred charges against Dr. E. C. Lewis, of Canal Dover, for unprofessional conduct, some three years ago, came up for hearing in due form, viz: A copy of said charges of unprofessional conduct, with specifications, having, by the Secretary of the Ohio State Medical Society, been furnished the accused, and he cited to appear before the Committee on Ethics at this meeting, to

answer said charges and specifications. The parties appeared—Drs. McLean, Smith, Brannan, A. A. Davis and Mrs. N. D. Richards, on behalf of the Tuscarawas County Medical Society, plaintiffs, and Dr. E. C. Lewis, defendant.

After a very protracted and careful investigation of said charges and specifications, lasting a whole day, testimony on the part of the prosecution, and also of the defence, both documentary and oral, being carefully sifted and weighed, your committee do find Dr. E. C. Lewis guilty of the charge of unprofessional conduct, in the following specifications:

1st. That "the said Dr. E. C. Lewis knowingly violated Section 4, Article 5, Code of Ethics of the American Medical Association," the same being the Code of Ethics of the Ohio State Medical Society, viz: "In his continued, unjust, unkind, discourteous conduct toward members of this Society, and remarks, derogatory to them as physicians."

2nd. That the said Dr. E. C. Lewis, by the evidence, was found guilty of conduct unbecoming a physician, and derogatory to his professional standing as a member of the Ohio State Medical Society. In this, that the said Dr. Lewis attempted to procure an insurance upon the life of one Mrs. Edwards, of New Philadelphia, Ohio, in the U. B. Life Association of Pennsylvania, Mrs. Edwards being at the time a patient, sick and diseased, and under the care of the said Dr. Lewis, and whom he was at the time visiting regularly as her physician, and said Dr. Lewis having acted himself as examining physician of the said Mrs. Edwards aforesaid, and applied to said company for a policy "*payable* to *himself*," he having also about that time declared to Mrs. Dr. N. D. Richards and others, that the said patient, Mrs. Edwards, was afflicted with cancer of the uterus, and could not recover.

3rd. That the said Dr. E. C. Lewis was in the habit of consulting with, and countenancing, quacks and irregulars, in violation of Article 14, Section 1, Code of Ethics of American Medical Association, the same being the Code of the Ohio State Medical Society.

4th. That the said Dr. E. C. Lewis is guilty of violating Section 10, Article 4, Code of Ethics of American Medical Association, the same being the Code of the Ohio State Medical Society, in regard to "consultations," viz:

disregarding the character and standing of the practitioner in attendance, &c.

Therefore, your committee unanimously recommend the adoption of the following resolution:

"That Dr. E. C. Lewis, of Canal Dover, the defendant in this case, be expelled from all the rights and privileges of this Society."

E. H. HYATT,
W. J. SCOTT,
I. L. DRAKE,
W. H. H. NASH,
W. D. SCARFF,
} Com. on Ethics.

The following papers were read:

"Report on Drinking Water," by Dr. W. J. Scott, Cleveland. Discussed by Drs. R. H. Reed, H. J. Herrick, Scarff and Darby.

"The Necessity for the Radical Operation in Empyema," by Dr. S. F. Forbes, Toledo. Discussed by Drs. Ransohoff, Vance and Bennitt.

"Changes of Disease Types in Central Ohio," by W. Morrow Beach, London.

Society adjourned to 9 o'clock A. M., June 12th.

THIRD DAY—MORNING SESSION.

The first Wednesday in June, 1885, at 2 o'clock P. M., was fixed upon for the next meeting of the Society.

On motion of Dr. H. J. Sharp, the report on Revised Bill for the establishment of a State Board of Medical Examiners, was taken from the table.

On motion of Dr. J. M. Weaver, the amendment offered by Dr. T. A. Reamy, was rejected.

On motion of Dr. X. C. Scott, the report was adopted.

The President appointed the following members as the

committee contemplated by the report: Drs. X. C. Scott, Cleveland, J. I. King, Burgh Hill, J. M. Weaver, Dayton, H. J. Sharp, London, W. H. Philips, Kenton, C. A. L. Reed, Hamilton, D. N. Kinsman, Columbus, J. F. Baldwin, Columbus, G. S. Franklin, Chillicothe.

The Committee on Finance presented their report, as follows, which was adopted:

The Finance Committee would respectfully report that they have examined the books and accounts of Dr. T. W. Jones, Treasurer, and find his vouchers correct.

There remains in his hands the amount of eight hundred and $\frac{82}{100}$ dollars ($800.82) to the credit of the Society.

The committee has fixed the annual assessment at one dollar.

In regard to the charges against Dr. J. F. Baldwin, referred to the committee, it is respectfully reported that from an examination of the books, and from the testimony of the present Treasurer, it appears that the Society has not suffered any loss by Dr. Baldwin while he was an officer of the Society.

In regard to the other charge, which does not rightly belong to the subject of finance, but upon which the committee is required to report, they would say, that the fact that Dr. Baldwin is now, and has been ever since the charge was made, by the action of the Society a member of its Publication Committee, is entire refutation of the charge.

The committee would recommend that the sum of fifty dollars be paid to the Chairman of the Publication Committee for his services during the year.

Respectfully submitted,

J. C. REEVE,
D. HALDERMAN,
R. L. SWENEY,
R. P. EVANS,
J. O. DAWSON.

The following papers were read:

"The Pupils as a Factor in Diagnosis and Etiology," by Dr. H. P. Allen, Columbus.

"Irritation of the Prostate," by Dr. R. Harvey Reed, Mansfield.

"The Treatment of Varicose Veins," by Dr. J. W. Craig, Mainsfield.

"Report on Milk Sickness," by Dr. W. Morrow Beach, London. Discussed by Drs. Starling Loving, D. H. Brinkerhoff, W. McIntire, H. J. Herrick, C. B. Ferrell, L. Woodruff, S. C. Dumm, S. W. Fowler and T. D. Beach.

Society adjourned to 2 o'clock P. M.

AFTERNOON SESSION.

The following papers were read:

"Sanguineous Cysts of the Neck," by Dr. J. Ransohoff, Cincinnati.

"Historical and Critical Notes on the Management of the Third Stage of Labor," by Dr. J C. Reeve, Dayton.

"Congenital Phymosis," by Dr. W. J. Conklin, Dayton.

"Foreign Bodies in the Urethra," by Dr. N. P. Dandridge, Cincinnati.

"Restoring the Ruptured Perineum," by Dr. H. Z. Gill, Cleveland.

On Motion of Dr. H. Z. Gill, it was voted that a General Collective Investigation of Disease Committee be apprinted, to co-operate with similar committees of the American Medical Association, and other Societies.

The Chair appointed as such Committee, Drs. H. Z. Gill, D. Halderman, G. W. Ryan, S. F. Forbes, J. O. Dawson, J. A. Murphy and L. Woodruff.

On motion of Dr. S. F. Forbes, it was voted that the Code of Ethics of the American Medical Association be printed with the Transactions.

The following Resolution was adopted:

Resolved, That the thanks of this Society be presented to Dr. S. Loving and Dr. J. W. Hamilton, and their families, for the very pleasant entertainment of the Society at their receptions last evening.

A vote of thanks was returned to the President and other officers, for their faithful discharge of duty.

Dr. W. A. Scott offered the following resolution, which was adopted:

WHEREAS, The Medical Profession is, as it should be, the guardian of the Public Health, and it is its province to warn the Public of dangers thereto, and suggest the means of avoiding them; and

WHEREAS, It is demonstrated that the effects of the use of alcoholic liquors as a beverage, and of narcotics, are baleful upon the health and longevity of the users, and also upon their offspring; and

WHEREAS, Right living cannot be expected without adequate knowledge; therefore, to promote such knowledge,

Resolved, That as the State provides liberally for the education of its children, it is the sense of this Society, that the principles of Physiology and Hygiene, including the effects of intoxicants and narcotics upon the human system, should be taught in all the schools supported by public funds.

The following is the consolidated report of the Committee on Admissions and Medical Societies, which was adopted:

NEW MEMBERS.

NAMES.	RESIDENCE.	COLLEGE.
Allen, Harlan P.	Columbus,	College Physicians and Surgeons.
Anderson, James	Salem,	University of New York.
Anderson, W. G.	Columbus,	Western Reserve Medical College.
Axline, C.	Fultonham,	Medical College of Ohio.
Baker, George G.	Akron,	University of Michigan.
Barb, Porter W.	Burgh Hill,	Cleveland Medical College.
Barnhill, J. W.	Columbus,	Columbus Medical College.
Barrere, D. M.	New Carlisle,	Miami Medical College.
Bauer, M. M.	Lake,	L. I. Hospital Medical College.
Beach, T. O.	Catawba,	Starling and Bellevue Med. College.
Blair, James F.	Marshall,	Louisville Medical College.
Brannan, T. H.	Canal Dover,	L. I. Hospital Medical College.
Brison, H. C.	Millersport,	Ohio Medical College.
Coldham, James	Toledo,	Harvard University.
Collins, John W.	Toronto,	Columbus Medical College.
Davis, A. A.	Mineral Point,	University of Wooster.
Dickey, John A.	Goshen,	Medical College of Ohio.

NEW MEMBERS.—*Continued.*

NAMES.	RESIDENCE.	COLLEGE.
Dimmick, O. A.	Chardon,	University of Michigan.
Elster, L. A.	Jeffersonville,	Bellevue Hospital Medical College.
Evans, James M.	Chillicothe,	Starling Medical College.
Floyd, J. C. M.	Steubenville,	L. I. Hospital Medical College.
Gibson, Robert M.	Portsmouth,	Medical College of Ohio.
Gill, H. Z.	Cleveland,	Jefferson Medical College.
Goodhue, George	Dayton,	Dartmouthand and Uni. of N. Y.
Goss, J. H.	Lancaster,	Cincinnati Medical College.
Greenleaf, C. R.	Columbus,	Medical College of Ohio.
Groves, J. E.	Uhrichville,	Columbus Medical College.
Gruwell, J. P.	Damascus,	University of Pennsylvania.
Guerin, Z. F.	Columbus,	Starling Medical College.
Hall, R. B,	Chillicothe,	Miami Medical College.
Heistand, E. B.	Kenton,	Bellevue Hospital Medical College.
Hill, C. C.	Levering,	Bellevue Hospital Medical College.
Hintzleman, Chas.	Cleveland,	University of Wooster.
Hughs J. H.	Delaware,	Columbus Medical College.
Hunt, W. C.	Warren,	Western Reserve Medical College.
Jewett, George F.	Hillards,	Columbus Medical College.
Keefer, A. H.	Lewis Centre,	Columbus Medical College.
Kerr, John N.	Mechanicsburgh,	Starling Medical College.
King, John I.	Burgh Hill,	Bellevue Hospital Medical College.
Kinkead, W. W.	Marietta,	Columbus Medical College.
Kirkpatrick, J. F.	Sedalia,	Keokuk Medical College.
Koogler, M. A.	DeGraft,	Jefferson Medical College.
Kreiger, G. L.	Lebanon,	University of New York.
McConnell, D. W.	Marseilles,	Starling Medical College.
McDowell, John D.	Delaware,	Miami Medical College.
McLean, J. T.	New Philadelphia,	Bellevue Hospital Medical College.
McPherson, J. T.	Cambridge,	Cincinnati Medical College.
Martin, F. O.	E. Townsend,	Cleveland Medical College.
Martin, J. T.	Green Camp,	Cincinnati Medical College.
Merriam, E. O.	Conneaut,	Geneva Medical College.
Merriman, D. J.	Painesville,	Detroit Medical College.
Mory, D. B. jr,	Wi mington,	Ohio Medical College.
Mosgrove, Jas. M.	Urbana,	Ohio Medical College.
Ogan, Ambrose	Sedalia,	——— ——— ———.
Pennell, W. W.	Fredericktown,	University of Wooster.
Pomeroy. F. S.	Montville,	University of Wooster.
Reed, R. Harvey	Mansfield,	University of Pennsylvania.
Richards, F. B.	Lake,	Ohio Medical College.
Richardson, D. W.	DeGraff,	Ohio Medical College.
Ricketts, E. S.	Portsmouth,	Miami Medical College.
Rupp, Samuel W.	Warren,	Western Reserve Medical College.
Ryan, George M.	Cincinnati,	University of Louisville.
Saxton, O. H.	Washington C. H.,	Ohio Medical College.
Scott, A. C.	Bladensburg,	Willoughby Medical College.
Scott, B. B.	Mt. Vernon,	University of Wooster.
Scott, Daniel A.	Akron,	University of Wooster.
Smith, J. M.	New Philadelphia,	Cincinnati Medical College.

NEW MEMBERS.—*Continued.*

NAMES.	RESIDENCE.	COLLEGE.
Stephens, Alfred H.	Nat. Military Home, Dayton	Ohio Medical College.
Storey, William	Castalia,	Bellevue Hospital Medical College.
Telfair, George M.	Bloomington,	Ohio Medical Coilege.
Thomas, F. W.	Marion,	Starling Medical College.
Tracy, J. L.	Toledo,	Bellevue Hospital Medical College.
Vigor, F. A.	New Dover,	Columbus Medical College.
Warner, Frank	Columbus,	Bellevue Hospital Medical College.
Wells, Edward F.	Minister,	Ohio Medical College.
Weeks, O. W.	Marion,	Columbus Medical College.
West, John E.	St Clairsville,	Ohio Medical College.
Wilson, E. J.	Mt. Vernon,	L. I. Hospital Medical College.
Zeigler, H. H.	Ayersville,	University of Michigan.

HONORORY MEMBER.

R. S. Sutton, Pittsburg, Pa.

The Committee find that the following Auxiliary Societies are represented by delegates:

Academy of Medicine of Cincinnati—T. A. Reamy, Geo. W. Ryan.
Ashtabula Co. Med. Soc.—E. D. Merriam.
Bay City Med. Soc.—W. W. Kinkead, Wm. Storey.
Central Ohio Med. Soc.—F. W. Thomas, C. F. Turney, J. O. Dawson, F. Warner.
Cincinnati Med. Soc.—N. P. Dandridge.
Cuyahoga Co. Med. Soc.—H. Z. Gill.
Delaware Co. Med. Ass'n—J. D. McDowell, Jas. H. Hughs.
Erie Co. Med. Soc.—Elwood Stanley.
Jefferson Co. Med. Soc.—J. D. Collins.
Knox Co. Med. Soc.—A. E. Scott.
Licking Co. Med. Soc.—L. W. LeCrone.
Marion Co. Med. Soc.—F. W. Thomas.
Madison Co. Med. Soc.—J. P. Kirkpatrick.
Montgomery Co. Med. Soc.—Geo. Goodhue, J. M. Weaver, J. S. Beck.
Morrow Co. Med. Soc.—J. L. Williams.
North Central Ohio Med. Soc.—I. F. Markel, S. B. Potter, R. Harvey Reed.
Northwestern Ohio Med. Ass'n—C. T. Benner, D. W. McConnell.
Preble Co. Med. Soc.—P. T. Gaus.
Seneca Co. Med. Soc.—Maurice Leahy, E. W. Sullivan.
Union Co. Med. Soc.—J. S. Howland.
Union Med. Ass'n—Jas. Anderson.

The Committee on Admissions and Medical Societies also recommend that the following Societies be made auxiliary to the State Society:

Gallia County Medical Society.

Hardin County Medical Association.

With regard to the Medical Societies in Delaware county, the Committee find that—

The Delaware County Association complied with the requirements for recognition as auxiliary to the Ohio State Medical Society, and was in point of fact so recognized, but through a mistake of the Secretary, in the Minutes of that year, the Delaware County Medical *Association* was recorded as the Delaware County Medical *Society*.

On motion, all remaining papers were read by title and referred to the Publication Committee.

The President then addressed the Society as follows:

GENTLEMEN—Before declaring the Thirty-ninth session of our Society closed, I earnestly express my sincere thanks for the uniform courtesy and kindness you have extended me during my official relations with you.

I have, no doubt, committed errors, and performed illy some of the duties devolving upon me in the manifold requirements; but I am conscious that they have been errors and nonperformances because of my inability to bring greater talent and larger experience to the task, and not to purpose.

Gentlemen, it is gratifying to have it pronounced that the present session has been the most satisfactory and successful in the memory of the present membership. Certainly, it has been one of most harmonious action, and, I believe, of good results. The Thirty-ninth session of your Society has been a successful meeting, except in the want of time to carry out the fullness of the program. You have added contributions to science, you have advanced your profession, you have done good to mankind. The profession and the State expect much of you in the future. You will nobly meet the demands. That you may live long and prosper, and that the rewards of a generous and grateful public may be yours, and that the sunlight of love may beam upon your future, I earnestly pray.

Fellows, we will not again all meet at the altar of our inspiration, but when the twilight of life earthly shall have merged into that brighter light of life eternal—there!

Thanking you again gentlemen, I declare the Thirty-ninth session of your Society closed.

The Society then adjourned to meet in Dayton on the first Wednesday of June, 1885, at 2 o'clock P. M.

C. P. LANDON,
President.

G. A. COLLAMORE,
Secretary.

LIST OF AUXILIARY SOCIETIES,

WITH DATE OF ADMISSION.

Academy of Medicine of Cincinnati	1875
Allen County Medical Society	1867
Ashland County Medical Society	1865
Ashtabula County Medical Society	1878
Athens County Medical Society	1866
Bay City Medical Society	1880
Brown County Academy of Medicine	1877
Butler County Medical Society	1852
Central Ohio Medical Society	1869
Champaigne County Medical Society	1853–1879
Cincinnati Medieal Society	1875
Clarke County Medical Society	1849–1852–1877
Clermont Medical Association	1854
Clinton County Medical Society	1879
Cuyahoga County Medical Society	1879
Darke County Medical Society	1879
Defiance County Medical Society	1881
Delamater Medical Association of Norwalk and vicinity	1859–1870
Delaware County Medical Association	1854–1875
Erie County Medical Society	1850–1877
Fulton County Medical Society	1870
Gallia County Medical Society	1884
Geauga County Medical Society	1882
Greene County Medical Society	1856

Guernsey County Medical Society - - - - - - - 1881
Hardin County Medical Association - - - - - - - 1884
Highland County Medical Society - - - - - - - 1877
Hocking Valley Medical Society - - - - - - - - 1879
Holmes County Medical Society - - - - - - - 1869
Jefferson County Medical Society - - - - - - - 1859
Knox County Medical Society - - - - - - - - 1863
Lawrence County Medical Society - - - - - - - 1877
Licking County Medical Society - - - - - - - 1877
Lebanon Medical Society - - - - - - - - - - 1879
Logan County Medical Society - - - - - 1875–1877
Madison County Medical Society - - - - - - - - 1881
Mahoning County Medical Society - - - - - - - 1879
Marion County Medical Society - - - - - - - - 1879
Meigs County Medical Association - - - - - - - 1850
Miami County Medico-Chirurgical Society - - - - 1851
Miami Valley Medical Society - - - - - - - - 1879
Montgomery County Medical Society - - - - - - 1851
Morrow County Medical Society - - - - - - - 1878
North Central Ohio Medical Society - - - - - - - 1881
North-Eastern Ohio Medical Association - - - - 1870
North-Western Ohio Medical Association - - - - 1869
Pickaway County Medical Society - - - - - 1856–1878
Portage County Medical Society - - - - - - - - 1869
Preble County Medical Society - - - - - - - - 1849
Richland County Medical and Surgical Society - - 1850
Ross County Medical Society - - - - - - - - 1876
Sandusky County Medical Society - - - - - - - 1880
Seneca County Medical Society - - - - - - 1854–1879
Shelby County Medical Society - - - - - - - - 1852
Stark County Medical Society - - - - - - 1850–1852
Stillwater Medical Society - - - - - - - - - - 1873
Summit County Medical Society - - - - - - - 1866

Toledo Medical Association - - - - - - - - - 1857
Trumbull County Medical Society - - - - - - 1868
Tuscarawas County Medical Society - - - - - - 1851
Union County Medical Society - - - - - - - - 1882
Union Medical Association of Columbiana and adjoining Counties - - - - - - - - - - - - - 1879
Wayne County Medical Association - - - - - 1850
Wood County Medical Society - - - - - - - 1877

OHIO STATE MEDICAL SOCIETY.

At the Seventeenth Annual Session of the Ohio State Medical Society, the following resolution was adopted:

Resolved, That the publication of any address, prize essay, or other paper, by this Society, is no evidence of its endorsement of the sentiments therein contained.

PRESIDENT'S ADDRESS.

BY C. P. LANDON, M. D., WESTERVILLE.

Fellows of the Ohio State Medical Society:—

He is a colder or a stronger man than I, who can approach this moment, and stand and pronounce here without emotional evincement, reflecting during the months past how many good, great and wise men have stood in this place and pronounced in our own noble commonwealth, and in the Medical Associations of the different States of the Nation. I frankly and candidly make the confession that I have shrunk from this office as never before shrinking any duty.

So much has this feeling possessed me that I have deferred, until the last weary moment, the always needed preparation, and I appear before you with little more than the mere text of the substance I am desirous of presenting you. My refuge in this, as in the past, must be the assurance of your generous and kindly criticisms.

No period in the world's history reflects in any organized effort the wonderfully gratifying progress and advancement which has, in the last three decades, been awarded to medicine. The advancement has been real, substantial, brilliant, solid, heroic and humane.

Your Society has not yet reached the fourth decade of its history, and the vital forces of its life have pulsated in the current of progressive medicine in these brilliant decades. In this is presented a real existence of a potent factor in professional culture. Associative action in America, as in the older nurseries of science, asserted its influence and power, and now, to-day, passes to the public, rapidly and most clearly, the results of investigation, observation and proven truth, in a most practical manner. To present briefly, and, I know, in a crudely discursive manner, the demands

of to-day as invited from this Society, especially the needs of the profession and the public, through legislative requirements, is the purpose of this moment.

It is now believed that in the last quarter of a century, a very grave mistake has been made by the profession in its almost entire neglect of, and ignoring legislative action in securing the recognized and declared beneficial reform. A morbid sentiment has prevailed that has controlled professional opinion, and discouraged any action by the profession, to invite legal effort to promote and secure regular and true medicine. This sentiment has passed to the people, and hence the present disregard of the Representatives of the real demands and wants of the public. A sentiment swayed for years with potency, that truth and science needed no support and protection of law. A grave error, as now evinced. Under this sentiment, empiricism, pretense, falsehood, the 'isms and the 'pathies, have flourished and grown, and are now, with increased destructiveness, scourging the public, while true and rational medicine, as presented in your ranks, is called upon to bear the odium and responsibility. The injustice of this public sentiment is apparent, and yet it exists.

I repeat the utterances of last year: Is it not the duty of regular and rational medicine, to expose error with truth, and demand with a higher intelligence such legislative action, and the establishment of such State institutions as will relieve the publ c and the State of the misfortune of the scourge of irregular medicine? Is it not now seen that science and truth, unaided, are not potent to establish their existence and merit without assertiveness and aggressiveness? Ohio, to-day, while in point of many of the essential elements of greatness, the second commonwealth of this now truly great nationality, is the hot-house and nursery of all the 'isms and 'pathies of the age. Other State Associations and other States of the Union are far behind Ohio in this needed care and required legistation. The public should be educated to the reception of true medicine, to the exclusion of the false A popular journal of intelligence should be established, emanating from this Society, or, at least, having its sanction, containing a department of preventive medicine, sanitary science, the education of nurses, the rearing of children, the laws of hygiene and dietetics, the reception of true, rational

deductive medicine. If law, order, religion, society, agriculture, require culture for their reception, why not medicine?

It will no longer do to assert that the virtues of a principle or philosophy will be self-asserting and need no education of the people. I repeat, therefore, to-day, what I have in the past years often expressed, that the public security demands that the people be protected from ignorance, cupidity, and knavery in the profession which can and should reflect greater good than any other. While there may, and doubtless do, exist individual instances of the want of merit and actual deficiencies of claimants of regular medicine, they are believed to be the exceptions. Such is the history of all professions and organizations. That there are so few in regular medicine, comparatively, is a wonder of the wise man.

I am not called upon to champion your profession, yet my position licenses me to pronounce truth and declare real existence. There is not to day a more able and cultured body of men organized in the State for the promotion of the public good than your society. There is not in the Union a greater assemblage and association than is presented in the able representatives of the American Association. Each of these organizations, with all the representative societies of the Republic, are ready and willing to do that which will promote public health and arrest the progress of disease.

Let us rightfully demand, in our effort to reflect these great benefits upon humanity, support from the legislative function. It cannot be said that either of the leading professions are perfect, but the public peculiarly hold the medical profession to the responsibility of presenting to the afflicted wise and true medicine. This has received very little help of law or public sentiment.

The profession of law requires candidates for honor and recognition, to be passed upon by a commission of their own creation. The clergy determine their own fellowship. Why not medicine? You will thereby ligate many of the currents of disturbed functional harmony of the colleges, and professional health, thereby becoming real public benefactors, and adding greatly to public security. There is no profession of which the public expect and demand so much, and extend so little by sympathy, influence, or law. Leg-

islation is not so much required to advance true science as to protect the public from the wiles of ignorance, deception and dishonesty. How long are you to stand suppliant for the creation of a State Board of Health? But you will not cease your labors, gentlemen, until you have secured that great need of the State—the establishment of a State Board of Health. It is a measure of paramount importance to the profession, and more to humanity. With a Sanitary and Statistical Bureau, the votaries of science will be guided by the lamps of truth, experience and established facts.

You have already congratulated yourselves upon the organization of a State Sanitary Association, and it is confidently hoped that this advance taken will invite new action and open the door to securing from the State that recognition necessary for a radical change and reform. That you will mass your force this year, and take such action as will secure harmony and success in regulating the practice of medicine in the State, I am confident. Your past failures are mainly due to the fact that you have not formulated and united upon some agreed plan. That you will do so at this session, I most earnestly and respectfully urge. In doing this, your duty will not be performed in mere resolves; you will adopt a policy, and see the same perfected and secured.

Much of late has been said, and much has been written, in denunciation of the colleges of the land, and it is believed by your speaker that not all of this criticism and the arraigning are just. It is extremely questionable whether all the evils which have fallen upon the professsion flow from a want of healthy condition of the colleges of the land. The shortcomings and disrepute are exceptions, and by far not the rule. It is the conviction of your speaker that our colleges do in the main good work. It would be well if we looked elsewhere and previously, and made a self-examination, and learn if we do not fail sometimes to furnish the very best material for colleges to cultivate. It would be well to make inquiry if there be not need of reform and the requiring of a superior preliminary education. But, after all, the regular profession of Ohio can challenge the presentation of an abler, more cultured body of men. In an analysis of the learned professions, medicine would not suffer. No second position would be accorded it in point of culture, or faithfullness to the public.

The character of medical gentlemen suffers not in the comparison with any body of men in the country. Have we not been too critical and censorious of ourselves and our schools, and thereby created a multitude of quartets, choruses and echoes by the public? In the personale and the schools of the profession a mole-hill has been discovered and a mountain proclaimed. The regularly enlisted pass in good review. The camp followers bring the odium to the regular forces. It would be wise in the future to invest the same power that licenses the candidate to practice to revoke the license when found unmerited or dishonored.

In the legislation you ask, you will, I doubt not, secure in the courts a proper and equal recognition of your rights as experts; nor is there any just reason why the secrets of the criminal given to his attorney, or the sacredness of the confessional, should be less violate than the revelations given you in your intercourse with the afflicted.

The alarming prevalence of the practice of criminal abortion demands that such legislation be had, as that the criminal be convicted and brought to justice wherever found. To your lasting honor be it said that the escutcheon of the regular profession is untarnished by this blight.

In the last few years a breeze has sprung up in those sections of our country where are nurtured the extremes of ethics in morals, society, religion, politics and medicine, the East and the South, and a wail has floated over the land for a change, or an abrogation, of the ethics of the fathers. I repeat the utterances of last year; my heart warms at the reflection that you, to-day, do not feel invited to depart from the recognized and established ethics of the fathers; a departure in which there is neither reason, justice, truth or honor. You do not feel invited to strengthen the arms of treason and "land piracy" by association and affiliation, and to aid and abet the perpetrators thereof to deceive and afflict the public. True, medicine is as broad and receptive as light, and humanity in one motive force can determine and make secure. If there is to be a union, it must be only by the retaining of truth, the cherishing of honor, the reflection of intelligence, the espousal of and adherence to those principles which will stand the test in the crucible of reason, science, and that

which is always the sign by which we triumph—intelligent experience and observation.

The plane, gentlemen, on which you stand, all men, who have science and humanity at heart, can stand upon. While you exclude nothing found efficient, you claim no specifics, you recognize no 'isms, no 'pathies, you claim all that science can test, or the mind of man can reach as your prerogatives. He who goes out of your recognition, he who stands out of your fold, stands there to deceive the public, and make merchandise of the profession. New York has not been constituted the wet nurse of the profession of the nation. Ohio needs no change in professional ethics; she needs most its enforcement. The Code is good enough—well enough. It is only when disobeyed and its behests ignored, when and where trouble comes.

I feel that I shall fail in a duty to day did I not voice what I regard the sentiment of this society upon a subject on which every humanitarian and philanthropist should be profoundly awakened. The Eleemosynary Institutions of the State were the creations of the fathers of this Society; they were their offspring; they are your wards, and you cannot shrink from voicing the correct principles of their government. Whose heart has not been pained, in the last five years, at the tendency to their disintegration and the marring of their usefulness! Their control belongs not to the partisan politician; it would be a blistering, burning shame to make political capital, and sap the blood of afflicted, stricken humanity, to strengthen partisan power. A greater, higher crime to humanity could not be conceived, Humanity calls earnestly, in the pathetic eloquent voice of helplessness; humanity carries with the sentiment the just demand to be heard in her appeal in eloquent pathos! What medical gentleman of refinement and culture, possessing a sense of honor, and who values his own good name and the heritage of his family, would not tremble to accept a position and assume the duties of medical office in one of our leading institutions of to-day under a Board of partisan politicians, and only assume the responsibilities because humanity and the needs of the State appeal? See to it, gentlemen, that these creations of the fathers, these wards of yours, are secured from the wiles of partisan hucksters. The sovereigns of the State should be alarmed at the disintegrating and sacreligious hand of the partisan. These offices should receive

the sanction of this society, or be controlled by a State Board of representative men of the profession of the State. There is no class of our people who at once invite so acutely our sympathies, and at the same time demand so much, and give so much inspiration to the ardent devotee of humanitarian science as the class referred to, and for whom the State has done so much.

While great as has been the advanced and proved culture of the profession in disorders of the nervous system and the mind, not until a clearer knowledge of the science of psychology will we have evolved many of the masked and unexplained phases of psychic evincement. You will not charge egotism if I venture the confidence that psychology will be the study of the medical man most evolving of all at the close of the nineteenth century. Its development will unlock the treasures of mental truth in its morbid action developing disease. It will aid the physician in the intricate duties in calling the clouded brain to sparkling reason, avert the character of marked individuality or eccentricity from being regarded as making a departure from sanity; prevent law from rescuing the criminal from the just punishment of his crime, give the solution to mesmerism, magnetism, clairvoyance, so called but misnamed spiritualism, reveal clearly the "faith cure" by prayer, the laying on of hands, for all these are purely psychological questions, and that culture which shall make clear these will open the pathway to the higher laws of man's requirements, and exhibit the relation of mind and matter, and the influence of each in the disintegrating and repairing process. A few men who ought not to have entered the profession because of a want of capacity, adaptability, genius or skill, have pronounced a lack of faith in therapeutics—but, gentlemen, there are more infidels in law and religion and government, than in our art. They did not succeed themselves, and hence the failure of medicine to their wise vision. Gentlemen, I have faith in the virtue and efficiency of medicine. You have faith. I have faith in man! I have faith in God! The world is becoming wiser, and, I believe, better, and in the evolutions of the near future the heart of man will be made to leap with joy, and in the fullness of that exaltation be able to exclaim at the wondrous diffusion of new light, Lookout! behold! admire! and rejoice!

REPORT ON

TUBERCULOSIS.

BY D. N. KINSMAN, M. D., COLUMBUS, OHIO.

Leaving aside the experiments made by Kortum, Lombard and Cruveilhier, we begin at once with those of Villemin. In his first memoir he says: "If you make upon the ear of a rabbit or in the groin or axilla of a dog previously shaved, a cutaneous wound so slight that not the smallest drop of blood escapes, and therein insert a piece of tuberculous matter as large as a pin-head, taken from a man, a cow, or a rabbit already rendered tuberculous, so that it does not escape, or if with a Pravaz syringe a few drops of tuberculous sputum, diluted with water, be placed beneath the skin of an animal, this is what follows:

"The day after the operation the most careful palpation does not reveal any trace of the inoculated matter, and the borders of the wound are adherent. After four or five days there appears a slight tumefaction, sometimes accompanied with heat and redness, and you will observe the local development of the tubercle, from the size of a flax seed to that of a filbert.

"For some time subsequent to the operation the animals present no sensible change of health. Some even take on fat, others weaken progressively and fall into marasmus, are frequently seized with colliquative diarrheas, and die in a state of extreme emaciation. * * * When an autopsy is made of the animals, the tubercles at the site of the inoc-

ulation will be found to be a caseous mass, around which are frequently seen very small, yellowish granulations, which infiltrate for some distance the inter-muscular connective tissue. * * * The lymphatic ganglia in communication with the inoculation wound, swollen and sprinkled with granulations and tubercular nodules, which end sometimes in complete caseation. * * * When the animal is killed before the fifteenth day, tubercles are rarely found in the organs.

"Therefore there elapses between the inoculation and the tuberculous eruption, a certain period which seems to us to vary from ten to fifteen days."

In these words, in 1865, Villemin communicated his epoch-making discovery.

A crowd of experimenters at once entered this field, with various methods of operating, and, as a consequence, their results greatly varied.

The essential characteristic of Villemin's method was the suppression of traumatism so far as possible. It was quite otherwise with other experimenters. Sanderson, Wilson, Fox and Parrot, used a trocar to insert the matter beneath the skin. Klebs, Cohnheim, Waldenburg and others, injected the matter into the peritoneal or pleural cavities. Herring placed the matter on the surface of open wounds. Pappillon enclosed the matter in the meshes of setons, which were introduced and left, or immediately withdrawn.

Cohnheim introduced the tuberculous matter into the anterior chamber of the rabbit's eye. The wound healed, the matter gradually disappeared, and at the end of from twenty to forty days, small nodules of gray or transparent color appeared on the iris. These augmented daily in size, then remained stationary for a time, or caused panophthalmitis and destruction of the eyes. Many of the animals experimented upon died in from three to seven days from septicemia, erysipelas, peritonitis, or pleurisy, before the time for the eruption of the tubercles.

While Villemin succeeded in sixteen out of eighteen cases, others failed in like proportion from error in method. Chauveau made a paste from portions of the lung or ganglia, which was then diffused in a large quantity of water. This was left to subside for thirty-six hours, and afterwards filtered through very fine linen. This water

was injected into the animal with a syringe. Chauveau's experiments were always successful, and never followed by inflammation.

Toussaint made many successful operations with fresh blood coming from tuberculized cows and hogs.

Raymond and Arthaud have always succeeded in producing tuberculosis by inoculating with the blood of men and animals in an advanced stage of the disease.

Toussaint has successfully inoculated animals with the nasal mucus of patients with tubercular ozena, with bronchial and buccal mucus, and with the urine of patients with tuberculosis of kidneys or bladder. He introduced the vaccinal serum of a tuberculized patient into a rabbit, which was followed by tuberculosis. All the experiments detailed above were made with tuberculous matter, and conclusively by themselves proved the inoculability of tubercule. On the other hand, Cruveilhier and Lombard produced tubercles by introducing mercury in the lungs. Crocq, in 1856, produced growths having the aspect of tubercles, by injecting chromate of lead into the lungs. Vegetable seeds were injected by Behier and Damaschino. Lebert and Wyss injected all sorts of pus, of all kinds of origin, and at the autopsies found eleven cases of tuberculosis out of fifty.

Sanderson injected pus and produced tubercles, and by the introduction of a seton or cord, Fox introduced into animals putrefied muscle, vaccine virus, pieces of fatty liver, granular kidney, producing with each lesions he called tubercles.

Colin inoculated with chalky tubercle from men and cows, with portions of tumors filed with parasites, and produced tubercles.

Empis saw tubercles follow inoculation with pus of lung in state of gray hepatization and the ulcerated Peyer's patches of typhoid fever. Cohnheim and Frankel introduced into the peritoneal cavity, cancer, sarcoma, aniline blue, cotton and charpie, and at the autopsies found tuber cles. Waldenburg used tubercular matter, changed by alcohol, acted upon by nitric acid, washed in solution of sodic bicarbonate, and yet the crop of tubercles followed.

Hence he concluded that a chemical or organic agent was not necessary to produce tubercles, but that exceedingly fine particles of matter which should determine an irritation in the tissues of limited extent, would result in tubercles.

Pappillon, Nicol, Laveran, Colin, and others, reported similar experiments and like results. Brunet had concluded from his experiments that cancer was more potent to produce tubercles than tuberculous matter itself. It seemed as if every particle of evidence, upon which the infectionists relied, was neutralized by the experimenters who had contested the truth of Villemin's discovery.

In 1881, H. Martin came forward with a new set of experiments and conclusions, which once more rehabilitated the discovery of Villemin.

By intravenous injections of dilute croton oil, he produced in the summits of the lungs, miliary nodules, absolutely identical in structure with tubercular granules. He describes them as consisting of a central zone, formed by a caseous mass, sometimes granular, sometimes cellular and infiltrated with fat; a middle zone of epitheloid cells, whose nuclei strongly stain with picro-carmine, and an outer zone consisting of giant cells, surrounded by embryonic cells, resting in a surrounding zone of catarrhal pneumonia.

Experiment had produced, at last, by a non-specific agent, an anatomical entity, corresponding in every respect with the definition of tubercle, begun by Virchow and perfected by Langhans, Schuppel and Rindfleisch and Charcot. Microscopic examinations are sufficient to show the anatomical identity of the nodules, known as tubercles, whether caused by inert matter, the ova of stronglyes, organic matter of all sources, with those produced by the inoculation of true tubercular matter. And unless some other mode of distinguishing the true from the false tubercle is forth-coming, the doctrine of the infectiousness of tubercle must be consigned to that limbo already tenanted by so many abandoned medical theories.

Martin had been a strong infectionist throughout the entire series of his experiments. He had recognized that although he could produce limited lesions, resembling tubercle, by small doses of vermilion, charcoal and lycopodium, yet by the use of the largest doses the lesions did not become general, as after inoculation with fresh tubercle. And furthermore, after the largest doses, the lesions produced lost their resemblance to tubercles. Martin, Toussaint and Villemin found, after animals had been artificially tuberculized by the use of tuberculous matter, the disease

could be indefinitely communicated from animal to animal, and that the intensity of the poison increased as the series was extended. So that while the first series of animals inoculated would survive five months, the animals of the fifth series would survive only two months.

In September, 1882, Capitan and Charrin stated they had observed the same increased virulence in the action of the poison in successive series of inoculations. They observed also the progressive increase in the size of the spleen in their series of inoculations. This fact also shows the close affiliation of tuberculosis with other infectious diseases. Finally it was demonstrated that false tubercles, when inoculated in series, do not produce the same disease, but become attenuated in their effects and cease to produce any further effect.

Thus has the specific character of tuberculosis been established, and it has been further shown that the only test to this point in our investigations, for *true tubercle*, is its capacity for indefinite serial transmission.

We will now give a brief resume of what has been learned of the possibility of communication of tuberculosis by ingestion. Martin, in 1839, published the following, which I translate:* A woman, aged 58, who had suffered many years from phthisis pulmonalis, had a house-dog which during a year had swallowed, with eagerness, the purulent sputa of its mistress. At the end of six months the dog coughed and threw up pus, it became weak and died. The patent procured another dog, aged one year, and about one foot high. The latter, although fed with milk and meat, developed the same taste as its predecessor. Six months later it became sick and died at the end of twenty weeks. On opening the chest both lungs were found destroyed by suppuration.

Dr. Janeway, of New York, cites a similar case of the occurrence of phthisis in the dog from devouring the sputa of a consumptive.† We will now cite the experiments‡ of Chauveau instituted upon cattle, by feeding them tuberculous matter. The animals chosen were of ages least liable to tuberculosis, the oldest being fourteen months, the others sucking calves, eleven in all.

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* Tuberculosis experimentale. Schmitt, page 22.
† Med. Rec. No. 28, 1883.
‡ La Nature Vivante de Contagion. Bouley.

Tuberculous matter was given to some of them to the amount of from 50 to 100 grams, four times daily, for fifteen days. Upon these the doses were augmented to force the development of the lesions. The rest of the animals had a small quantity once daily. The longest time of the experiment was three months and one half. Some of the animals were killed at the end of a month. None of the subjects of the experiment escaped the disease. The disease was shown in all by lesions; slight in some; of such proportions in others that Chauveau calls them appalling.

Villemin produced successful ingestion experiments upon rabbits and guinea pigs with the sputa of consumptives.

Parrot, also, succeeded in the same class of trials. Saint Cyr, of Lyons, experimented successfully as Chauveau upon calves and heifers, by causing them to swallow tuberculous matter. The same results were obtained at the veterinary schools at Hanover and Dresden.* Here the experiment was varied in part by feeding some of the animals the tuberculous matter after cooking. The subjects of this branch of the experiment escaped. Zirn has infected pigs by feeding them with the milk from a tuberculous heifer. Viseur has infected cats, dogs and pigs by giving them to eat pieces of the lungs of tuberculized cattle.

The following table, taken from Bouley's work on Contagion Vivante, p. 351, by Dr. Johne, gives the results of ingestion experiments on 322 animals:

NUMBER OF EXPERIMENTS.	RESULTS.		
	Affirmative.	Negative.	Doubtful.
117. Tuberculous matter from young heifer	61.5 per 100	34.2 per 100	4.3 per 100
46. Raw flesh of tuberculous cows	13.1 "	86.9 "	0 "
90. Milk of tuberculous cows	30.7 "	59.3 "	1 "
1. Milk of tuberculous rabbit	100 "	0 "	0 "
25. Matter from tuberculous man	36. "	64 "	0 "
33. Tuberculous matter of swine	53. "	47 "	0 "
2. Tuberculous matter of sheep	100 "	0 "	0 "
2. Tuberculous matter of rabbit	50. "	50 "	0 "
3. Tuberculous matter of monkey	100 "	0 "	0 "
3. Tuberculous matter of birds	100 "	0 "	0 "

* Bouley.

This table shows, although the experiments are not so uniformly successful as those of Chauveau, that there is a possible contagion from food in a good number of cases.

Gerlach reports, of forty animals fed with tuberculous substances, thirty-five were infected. Of thirty-five fed with the raw flesh, coming from cattle with phthisis, eight were infected; and out of 15 fed with cooked tuberculous matter ten were infected. Ballinger has found that prolonged consumption of milk, from tuberculous cows, produces in this animal miliary tuberculosis.

The experiments of Tappeiner with the atomized sputa of tuberculized patients proved the communicability of tuberculosis by portions of matter introduced into the lungs.

In 1882, Giboux communicated* the results of an experiment made in the following manner:

Two boxes were made of the same dimensions—2.m x1.50 mx1.75 m. In the sides were apertures which could be closed by shutters at pleasure. On the 12th of January he placed two young rabbits, the offspring of healthy parents in each of the boxes.

From January 15th till April 5th, one hundred and five days, he introduced into box No. 1, 25 litres of air expired by patients in the second and third stages of consumption, in the following manner: At noon and at seven in the evening, the shutters were closed, and through a small opening the pipe of an India rubber bag, of from ten to twelve litres capacity, was introduced. When the vessel was emptied, this opening was closed for two hours, when all the apertures were opened for several hours. At the same times the same quantity of air expired by the same patients was introduced into box No. 2, in the same manner, except the air which was discharged into box No. 2 was made to traverse a thin layer of carbolized cotton, which was removed each time.

The animals in box No. 1 lost their appetite, had diarrhea, and died of a generalized tuberculosis. The lungs, especially at the summits, the spleen and liver, were sprinkled with granulations. The rabbits in No 2 showed no morbid symptoms, nor did the autopsies reveal any lesions.

Weichselbaum and Frerichs have experimented successfully with atomized sputa.

* *Comptes rendus*, 1882.

The history of researches on tuberculosis would be incomplete without a notice of Schuller's experiments. He operated on about one hundred and fifty rabbits and dogs, while trying to work out the pathogeny of tubercular disease of the joints.

He bruised the femoro-tibial articulation, and having done tracheotomy, injected into the trachea of the animals the liquid obtained by the suspension of fragments of different substances cut in small pieces or bruised in a mortar. He obtained in all but one of his cases, which died of septicemia on the sixth day, more or less extended tubercular lesions of the contused joint during the second, third and fourth week. Generally, the lungs showed no lesions before the twentieth to the twenty-fourth day, after which it was easy to recognize them with the microscope.

This is but a brief synopsis of what has been done in the field of experimental pathology of tuberculosis. Nor can I mention the labors of but few of many in the field.

The following propositions express the opinion of the profession upon the subject of tubercles:

1. Tubercles are infectious.

2. Tuberculosis in men and animals is one and the same disease.

3. Tuberculosis may be induced by *inoculation*, *inhalation* and *ingestion* of tuberculous matter.

4. There are no anatomical features, gross or microscopic, which enable us to distinguish the true from the false tubercle.

5. The only test of a true tubercle is its capacity for indefinite serial inoculation.

6. The tuberculous poison changes and intensifies the course of simple inflammation.

This much gained, the next question for solution arose in the following form:

What is the special element in a tubercle which renders it infectious?

To a resume of what has been accomplished in this direction, I now ask your attention. I omit the older views of Lebert and others.

Chauveau concluded from his inoculation experiments that the poison resided in very minute granulations. And Buhl had prophesied that the germ would be found to be a bacterium lodged in the caseous cavities.

In 1877, Klebs attempted the culture of the virus-bearing bodies, using the white of eggs as his culture medium.

He placed the egg-albumen in "sterilized" glasses, and introduced therein small portions of caseous matter. Some days after mobile cells and short rods appeared in the culture medium. These he cultivated in new fields. After several generations he injected a quantity of these granulations into the peritoneum of the cat, and produced tuberculosis. Klebs called the granulations, which he regarded as the cause of the tuberculosis, *monas tuberculosum.*

Reinstadler used Bergmann's fluid, consisting of water, sugar candy, ammonic acetate and potassic phosphate as his culture fluid. He confirmed by inoculation, in every particular, Klebs' conclusions.

Deutschman allowed tuberculous pus to separate into two layers in a glass. The upper layer contained a large quantity of the *monas tuberculosum.* With the upper clear layer he injected the anterior chamber of the eyes of rabbits without effect. However, when he injected the deposit at the bottom of the glass into the anterior chamber of rabbits' eyes, after the lapse of the usual time, tubercles of the iris formed, and the products of the disintegration of these eyes, when introduced into other rabbits, produced tuberculosis. Thus Klebs' alleged discovery was disposed of.

Toussaint introduced the serum of the blood of tuberculous cows into Pasteurs' flasks, previously sterilized, and charged with an alkaline infusion of the flesh of the swine. After the lapse of a few days he found in the fluid small granulations, single or double, or united in masses. From this he made a second culture, which he introduced into two cats, which died before the time had elapsed for the development of tubercular lesions. This time has been found to extend, ordinarily, after inoculation, from fifteen to twenty-four days, in case the inoculation has been made in the anterior chamber of the eye. Five months after he inoculated cats with the same fluid and produced tuberculosis in them.

Toussaint also took the pulp of the pharyngeal, pulmonary and intestinal glands coming from a sow which had become tuberculous from eating, four months before, the lungs of a tuberculous cow. With these he inoculated seven flasks containing a feebly alkaline solution of rabbits' flesh. In these flasks he found the same microbe as be-

fore. From this he made a series of cultures to the twelfth, at all times taking precautions for their purity. At the end of ten or fifteen days the turbid fluid became clear, and the microbes formed a deposit at the bottom of the flask. This deposit was formed of very fine granulations, double or united, in groups of from three to ten, or small irregular masses.

These microbes were immobile, surrounded by a viscid material, and from 0.0001 to 0.0002 mm. in diameter. These granulations Toussaint considered the carriers of the tubercular poison. Indeed, he announced that with them he had successfully inoculated cats, rabbits and hogs, and had recognized that these culture-fluids acted with greater energy than tuberculous matter itself, when used in inoculations.

Then, according to Toussaint, the tuberculous microbe was a micrococcus in groups from two to ten.

The importance of this clear description will be seen further along.

Aufrecht found micro-organisms in the center of tubercles, length double their width and very refractive.

Baumgarten found bacilli in the nodules of the rabbit more numerous in the center than at the periphery, resembling *bacterium termo*, but shorter and narrower, regularly cylindrical and swollen at the extremity. When they were treated with a dilute solution of soda or potash, they became very manifest as rods from three to six times as long as broad, and spread throughout the nodule.

We now come to the masterly investigations of Dr. Robert Koch. It will be unnecessary for me to go into any description of his methods. They are familiar to all who are conversant with medical journalism during the last two years.

He brought to the study of the germ of tuberculosis powers already trained in working out the life history of the bacillus of charbon. He adopted as a culture medium the sterilized gelatine of beef's blood, a solid medium, where all others had used fluids. He inoculated his prepared gelatine with tuberculous matter, and by a series of cultures isolated in perfect purity the bacillus he had already recognized in tubercular growths, by his process of staining. By inoculating various animals with the bacillus alone, he was able to produce general tuberculosis. His success was such that he thought himself justified in publishing the con-

clusion, that tuberculosis is a specific infectious disease, depending upon a micro-organism, and that micro-organism is the bacillus described by him as the *bacillus tuberculosis*.

Koch's report of his investigations had such an air of honesty that they were accepted as final in almost all directions. His conclusions were denied by Spina, of Vienna, in such a spirit as to show that the criticism was born of professional jealousy rather than an honest search for the truth.

As the value of solids as culture media was called in question by some of Koch's adversaries, Raymond and Arthaud entered upon a series of culture experiments.* They made use of Pasteur's flasks, sterilized and filled with a sterilized fluid. The flasks having been prepared, were allowed to stand for several days in order to show that they were sterile. They were then inoculated in such a manner as to prevent the intrusion of any germs except tuberculous matter. The flasks were then placed, for ten days, in a temperature varying from 35 C. to 38 C. At the end of this time nothing special is to be observed. Then a deposit begins to form at the bottom of the flask. This continues to increase for one month, when it remains stationary. An examination of this deposite shows rods like a reduced bacterium termo, corresponding to the definition of Koch. At the end of the month spores appear, evidently produced in the bacilli. As the spores increase in number, the bacilli disappear till at the end of a second month, the bacilli have disappeared, and nothing but spores in the shape of a figure 8 remain, single or in rows, deprived of all motion, as indicated by Toussaint.

These cultures have been continued by Raymond and Arthaud to the fifth generation, by taking a single drop of the fluid from a flask in which the experiment was complete, and introducing it into a fresh flask.

Inoculations were made from the fluids of the second and third generations, upon twenty rabbits, all of which died of generalized tuberculosis. Successful inoculations were made upon rabbits with the fluids of the fourth and fifth generations. R. and A. found that the exposure of their flasks to the temperature of 100 C. destroyed the virulence of the fluid. They also found the microbes can be cultivated at 25 C., although at this temperature their evolution is very slow.

* Archives Generales, January and April, 1883.

On the 15th of June, 1883, Melassez and Vignal announced* that they had discovered a particular form of tuberculosis, characterized by masses of zoogleia, without a trace of Koch's bacillus. Inoculation with the culture liquid containing these masses, transmitted tuberculosis when the inoculations were made in series. And in the organs of the animals thus experimented upon, Koch's bacilli were found.

On the 15th of November, 1883, they made the following additional note:

"There are tuberculous lesions in which the number of bacilli is so small that their presence will not explain the lesions observed. It even occurs that whatever the number of sections examined, or the method employed, it is impossible to find a single one. We have endeavored to explain these facts by inoculation with tubercles manifestly free from bacilli, and in seeking if there exists in the tubercles so produced, bacilli or any other form or species of micro-organism.

"The following results were obtained:

"1st. Tuberculous lesions without bacilli may produce, by inoculation, bacillar tubercles, which leads us to suppose that the tubercular parasites existed in them, but not under the form of bacillus.

"2d. The same lesions may also produce non-bacillar tubercles in which there exists another kind of the parasite, which must be considered the cause of the malady.

"These are the zoogleia of micrococcus or gliococcus, the one perfectly distinct, the other more or less diffuse.

"3d. In the last generations of the inoculations the zoogleia may disappear and the bacilli appear. It therefore seems that the bacilli, the zoogleia, distinct or diffuse, are but different forms of the same phymatogenous parasite.

"Meanwhile, as we have not been able to see the transformation of the zoogleia into bacilli, as they do not react the same way in the presence of coloring matter, we do not wish to make any affirmation."

We, I think, are justified in concluding from the testimony, that we are acquainted with two forms in the life history of the bacillus. Raymond and Arthaud saw the bacillus disappear in their cultive fluids, and spores take their place at the end of two months. Inoculation

* Archives Gen., December 1883, et seq.

with these spores was followed by tubercles with the bacillar form.

Melassez and Vignal obtained a similar result from inoculations made with the zoogleia. And we must remember this was the form described first by Toussaint.

This fact, now well ascertained, I think, gives a complete explanation to the cases reported by Prudden, and the crucial case of Nothnagle, which was so long relied upon to give the negative to Koch's conclusions. It also silences many of the other objectors to the doctrines of Koch and his followers.

From the general harmony of results which have been observed in the experimental researches upon the tubercular parasite, we draw the following conclusions:

1st. The infectiousness of tubercles depends upon a parasite, which may be demonstrated by a special technique in all *true tubercles*.

2nd. The parasite of tuberculosis is known under two forms, the rod and spore, which mark different stages in the life history.

3rd. *Both forms are alike, capable, when introduced into a living organization, of producing general tuberculosis.

4th. The bacillus of Koch and the spore of Toussaint, Raymond and Arthaud and Melassez and Vignal, appear to be the only cause of tuberculosis.

CLINICAL SIGNIFICANCE OF THE BACILLI.

Can we make our knowledge, which has been so laboriously gained, practical?

Bacilli have been found in the sputa, in the nasal mucus, and in the blood of those suffering from tuberculosis. They have been found in the urine of patents who had tuberculous affections of the urinary apparatus, and in the fecal discharges of those suffering from tuberculous disease of the lungs, as well as in those who had tubercular intestinal lesions. Bacilli have been found in the contents of suppurated glands of the neck, and in an abscess beside the anus, and they have been found in the membranes of the brain in basilar meningitis. Are they always found in the sputum in all cases of tuberculosis of the lung?

Austin Flint, whose conservatism none will doubt, has

* *Vide* Gradle in Medical Record, June 7, 1884.

found the bacilli in all cases of pulmonary consumption in which examinations were made.

Weichselbaum, of Vienna, thinks the bacillus an evidence of tuberculosis, having never found them in any other disease.

Williams, of the London hospital for consumptives, and a non-contagionist. found them in two hundred cases of consumption, and in none of twenty-six cases of asthma, emphysema, empyema, bronchitis or bronchiectasis.

Heitler, of Vienna, has always found them present in tuberculosis.

Balmer and Fraentzel examined the sputa of one hundred and twenty phthisics, and never found the bacilli wanting.

Koch only found the bacilli in one half of his cases in which he examined the sputa at first. Fraentzel, in a second publication, says he has observed the bacilli in the sputum before there were any physical signs of lung disease.

Hiller found the bacilli in two out of three cases of hemoptysis previous to any physical signs.

Zeihl examined the sputum of seventy-three cases of tuberculosis. In a single case he failed to find the bacilli, and in thirty-four cases of non-tubercular disease of the lungs he failed to find the bacillus of Koch.

Lichtheim examined the sputa of a large number of consumptives, in all stages of the disease, and found them in all cases but two. In one case there was an arrest of the process, in the other he made but a single examination.

Frankel diagnosticated tubercular laryngitis by removing the secretion from the organ with a camel's-hair brush.

Heron found them in every one of sixty-two cases examined.

Wobly concludes from his examinations:

1st. The discovery of the bacillus is certain evidence of tuberculosis.

2nd. Their absence does not prove the absence of tuberculosis.

3rd. The number of bacilli has no prognostic signification.

Dreschfield found the bacilli in forty cases of advanced tuberculosis. He observed the bacilli become more numer-

ous when the sputum is allowed to stand for some days without examination.

In general terms the testimony of observers is uniform, as to the value of the discovery of the bacilli as a positive factor in diagnosis of tuberculosis. While the absence of bacilli from the sputa of persons showing other rational and physical signs, may not be as strong a negative factor in diagnosis, yet it should always have weight.

Pruden cites some cases where the most careful search failed to reveal the bacillus, yet they were undoubtedly tuberculous. The possibility of the spore form of the parasite should be remembered in such cases.

The following is the report of the work I have done in this field.

Case 1. M. G. Sick six months, cough some, expectoration large. Temperature, 100. Pulse, 120. Emaciated and weak. Breathing 24. Dullness in both apices, in front and rear; prolonged expiration and mucous rales; bacilli found; patient since dead.

Case 2. J. Age, 24. Student for several years. Was distinguished as fleet runner in college nine. During past winter worked assiduously in dissecting room. Has fallen off in flesh latterly, somewhat. Pulse, 80. Temperature, 98.6. Has had recently two attacks of hemoptysis, the last amounting to a teacupful. No modifications of percussion sounds. Prolonged expiration. Grancher's sign in right infra-clavicular region. Examined once for bacilli but *found none*. Health remains delicate.

Case 3. G. M. Age, 29. Carpenter. Was strong till five months ago, when he fell from a roof and severely bruised his right side. Soon after took cold and began to cough and emaciate. Temperature, 100. Pulse, 96. Emaciated; breathing rapidly. Dullness in supra-clavicular region on left side, with cavernous respiration. Expectoration large. Bacilli found in large quantity. A very large cavity found. The process has become arrested and the patient has gained twenty pounds.

Case. 4. O. Age 30. Has had a left side empyema, which was discharged through the lung. The discharge continued many weeks, with hectic, cough and emaciation. No bacilli found. Recovered

Case 5. Suppuration of cervical glands of long standing. The pus contains cheesy flakes. Bacilli found.

Case 6. Mrs. S., age 47, of healthy family. Husband died nearly a year ago, of consumption. This patient began to cough before he died. Pulse, 110. Temperature, 101. Emaciated. Hectic fever daily, with night sweats. Dulness in both apices. Cavities in both summits. Bacilli found in large numbers. Death took place in two months after.

Case 7. J. M., aged 30, was taken sick in November, 1882, with a pericarditis; recovered sufficiently to go East at Christmas; took cold; had pneumonia of left apex, February, 1883. I found him with consolidation of left apex. Breathing, 50. Coughing and expectorating largely, a dense mucus. Spent the winter in Florida. No improvement. The patient returned in April. Improved for a few weeks. Had hemorrhages from the lungs, May 1st. Died in June.

Repeated examinations showed no bacilli, and yet the signs of cavity were unequivocal.

This patient had ulceration of cervical glands in youth, lasting years.

Case 8. Mrs. K. Began to suffer with lung symptoms in December, 1881. Progressed, with usual symptoms.

A cavity formed in left apex. Had a slight hemorrhage in June, 1882. This case improved from this time. Cough and expectoration became less, and she regained strength and flesh. I have no doubt this is a case of arrest of the phthisical process. Repeated examinations made during 1883, showed no bacilli in the sputum.

Case 9. H., age 40. Had syphilis many years ago. Has had superficial necrosis of frontal bones. Aphonic for years. Latterly has coughed much, and had soreness of throat. I made no examination in this case, except for bacilli, which were found in abundance. Patient is since dead.

Case 10. Mrs. L. In advanced stage of consumption. Examined for bacilli one week before her death, and found them in abundance in sputum.

Case 11. Consumption, advanced stage; bacilli found; death occurred four days later; bacilli in sputum.

Case 12. Mrs. H. Advanced case of consumption. Bacilli found; death three weeks later.

Case 13. Miss C. Coughed for months, then was seized with typhoid fever. Had severe laryngeal symptoms

during fever; recovered from fever; cough continued; cavity found in left apex. Bacilli present.

Case 14. Mrs. F. Small and frail. Has a hacking cough, but says she has no expectoration. Crackling over both apices and prolonged expiration. While sitting in my office I observed her cough, and spit out soon after a small glassy looking mass of mucus, about the size of a grain of wheat. Examination of this showed bacilli. She died three months after of confirmed consumption.

Case 18. P., age 26. Has been sick six months. Cavities; advanced phthisis. Bacilli in great abundance. Died three days after examination.

Case 19. J. C., age 24. Pulse, 84. Temperature, normal. Cavity in left summit. Dull on percussion in left mammary region, with pleuritic creakings. The disease has been in arrest for two years. No bacilli found.

Case 20. A. S., age 25. Father died of consumption. Has been sick four years. Has had two hemorrhages. Pulse, 100. Respiration, 50 per minute. Temperature, 101. Tympanitic under both clavicles. Cavernous breathing on right side, in infra-clavicular region. Pleuritic creakings. Bacilli found in sputum. Died three months after.

Case 21. A. S., age 38. Neither side of parent's family has any hereditary taint. Began to be sick three months ago. Pulse, 120. Temp., 102. Resp., 40. Cavity in left infra-clavicular region. Whispering pectoriloquy, with gurglings; free expectoration. Bacilli found. Subsequent history of case unknown.

Case 21. Miss B., age 16. Has recently had typhoid fever. Since subsidence of fever has had constant teasing cough, and expectorates enormous quantities of thick mucus. Signs on percussion, negative. Auscultation, mucous rales. Pulse, 110. Temperature normal. No bacilli. Diagnosis: bronchial catarrh. Patient fully recovered.

Case 22. This case was simply an examination of sputum brought me by the wife of patient for examination. The case was manifestly tuberculous consumption.

Bacilli found. Patient died a few weeks after.

Case 23. Mrs. W., age 56, colored. Has been sick for three months. Pulse, 120. Respiration, hurried. Has

ulcer on left side of epiglottis. Coughs much. Right lung shows slight dullness, with prolonged expiration in infra-clavicular region. Bacilli found in sputum.

Case 24. Mrs. S., age 30. Has been coughing for seven months. Motion on left side diminished. Prolonged expiration on both sides. Some creaking sounds on left. Emaciation is great. Bacilli in sputum.

Case 25. M. M., age 25. Sick two years. No hereditary taint. Advanced case of consumption.

Bacilli found in sputum.

Case 26. D. Severe cough, no fever, profuse expectoration of thin mucus. Large quantities of bacteria, but no bacilli, in sputum. Recovered.

Case 27. Bronchial catarrh. Severe cough and free expectoration. No bacilli, but plenty of bacteria.

Case 28. Suppurating cervical glands, of recent date. Pus examined and no bacilli found.

Case 29. Age 31. Consumption of long duration, and now but slowly progressing. Lesions limited to right lung.

Bacilli found. Patient remains in *statu quo.*

Case 30. Miss C. 13. Mute. Has been declining in health for four weeks. Physical signs negative. Coughs severely; small expectoration. Bacilli found in sputum.

Case 31. C.A.S., 29. Advanced stage of consumption. Bacilli found in sputum.

Case 32. Miss Mc. No hereditary taint; traces disease to cold 15 months ago. Has coughed ever since. Cavernous breathing in supra-spinous region on right side. Bacilli abundant in sputum.

Case 33. J. H., age 50. Not hereditary. Has been sick with lung disease twelve years. Left lung riddled with cavities, at one time, I should think. Chest contracted. Right side in fair condition. Discharges enormous amounts by expectoration. Pulse 86. Temp. 99. Resp. 40.

Bacilli found in sputum.

Case 34. D. R., age 39. Stone cutter; no heredity. Sick 18 months. Right side contracted. Pulse 100. Cavity in right apex. Bacilli found in expectoration.

Case 35. J. H. M. Patient has been sick seven months. Bronchitis at first, followed by dry cough. Emaciating. Coughs much at night. Pulse always less than 100. Respiration not increased in frequency. Vocal resonance

increased over right apex, with dullness. Bacilli found in sputum.

Case 36. Mrs. W. Age, 29. Has had chronic catarrhal trouble at nose and pharynx for years. Began to cough in February, 1884. Physical signs are indeterminate. Pulse, 110. Respiration frequent. Is hoarse at times, but the laryngoscopic examination shows no laryngeal trouble. Expectorates freely. Bacilli found in sputum.

Case 37. G. H. F. Sick for four months. Has been able to work all the time till three weeks ago. Traces trouble to cold. Three weeks ago took severe cold, and had severe sore throat. Physical signs obscure, but there is suspicion of trouble with right apex. Has fever and night sweats. Bacilli found in sputum.

Case 38. This was a specimen of muco-purulent discharge from the bowels of a patient, in which there was a conflict of opinion as to diagnosis. The examination showed bacilli.

Case 39. Woman. Age, 69. Asthmatic for years. There is emphysema, bronchial dilatation and profuse expectoration, which sometimes is stinking. No bacilli in sputum.

Case 40. Man. Age, 25. Advanced consumption. Cavities, profuse expectoration. Hectic. Bacilli found in sputum in great abundance.

Case 41. Woman. Age, 65. Has been sick for 15 years. Severe cough. Much emaciation and profuse expectoration. This case has been diagnosticated consumption and thus treated. Sputum was examined. Many bacteria found but no bacilli. I think this is a case of bronchiectasis and not tuberculosis.

Case 42. Man. Age, 24. Convict. Has severe cough. Expectorates largely. Mostly bronchial mucus. Physical signs indeterminate. No bacilli in sputum.

Case 43. This was a case in which syphilitic lesions of the surface of the body were very clear. The lungs give evidences of consolidation at summits There is much expectoration of muco-purulent matter. No bacilli in sputum. This is believed to be syphilitic disease of lungs.

Case 44. Advanced case of consumption, as shown by physical and rational signs. Bacilli found in sputum in small quantity.

Case 45. Advanced case of consumption, shown both

by physical signs and symptoms. Bacilli in large quantity.

Case 46. Advanced consumption. Bacilli abundant in sputum. Rods showing from four to six spores.

Case 47. Advanced consumption. Medium number of bacilli in sputum.

Case 48. Stone cutter. Six months ill. Cavity found in right lung. Emaciation. Profuse expectoration in morning. Bacilli in medium numbers in sputum.

Case 49. Male. Age, 34. Sick fifteen months. Cavity in left lung. Epiglottis shows thickening as well as at the cartilages of Santorini. There is tubercular infiltration. Bacilli in large numbers found in sputum.

50. Male. Prolonged expiration. Cough. Expectoration shows the bacillus, although the physical signs of cavity are not clear.

	No. Cases.	Bacilli Found.	Bacilli Not Found.
Consumption	36	32	*4
Suppuration of axillary gland	1	1	.....
Tuberculosis of bowels	1	1	.....
Bronchorrhea after typhoid fever	1	.....	1
Suppuration of cervical glands	3	.....	3
Bronchorrhea	4	.....	4
Empyema discharge through lung	1	.....	1
Bronchiectasis	2	.....	2
Syphilis of lung	1	.....	1

*Two of the four cases of consumption were in a state of arrest, without fever. Slight cough and expectoration and gaining flesh. In one the arrest has extended over two years, in the other one year. Two of the four cases were among my earliest examinations. In one but a single examination was made, in whom there had been hemor-

Since this paper was read before the Ohio State Medical Society, I have examined two cases of laryngeal tuberculosis, without manifest signs of lung lesions; seven cases of lung disease, with advanced lesions, in all of which the sputa furnished bacilli, and onec ase of chronic asthma, with bronchiectasis, in which none were found.

rhages, which had subsided, and the only sign was Grancher's sign of beginning tuberculosis. The case is declining in health constantly, and is undoubtedly tuberculous.

In the fourth case, which died soon after my examinations, there was undoubted consumption, for there were repeated violent hemorrhages and evidences of a cavity. I attribute my failure in this case to want of experience, it being my first case.

Recently, German See has published an important memoir upon the clinical value of the presence of the bacillus in the sputum.

He treats of three groups of broncho-pneumonic affections, in which the physical and functional signs are uncertain, in which the bacillus furnishes a sure and undeniable solution.

"1st. Latent phthisis, in which auscultation and percussion give such vague and uncertain results, that one physician will deny the presence of tuberculosis, another will assert, and a third will remain in doubt. In these cases there is sometimes persistent cough, and sometimes hemoptysis, coming on suddenly, in apparent rugged health. Sometimes by a fever, with a general decline of vigor.

The detection of the bacilli in the sputum is a certain solution of the problem.

2nd. There is another class of doubtful cases, which are masked by another affection, such as a pneumonia, a plurisy, a bronchitis, or laryngitis.

These he calls concealed forms. It is well known that there is a tuberculous form of pneumonia, called acute caseous pneumonia, acute pneumonic phthisis, which begins with all the signs of common acute croupous pneumonia. There are chills, pain in side, rusty sputa, crepitant rales, tubal breathing and bronchophony. In both the symptoms are the same. The evolution of the disease will, in the end, conduct to a diagnosis. The examination of the sputa allows us to recognize the disease at once.

In the third class, he places *pseudo-phthisical* affections which, by their stethoscopic signs, simulate tuberculosis.

Syphilitic gummata of the lungs, either in their period of infiltration, their stage of softening, bronchial dilatation of sacciform shape, sclerosis of lungs, chronic bronchial catarrh, with or without asthmatic complications, are very frequently confounded with tuberculosis. The

absence of the bacilli will, in all these cases, exclude tuberculosis."

German See also calls attention to the necessity of examining the sputa of diabetics, who cough, for the purpose of finding whether they are attacked with tuberculosis or not, and concludes: There is reason to believe that a sputum, containing the bacillus, should to-day be considered an infallible sign of tuberculosis. Each time, when, after one or many examinations, the presence of the bacilli in the sputa has been established, we may be certain we have a case of consumption.

The opposite is not less true. Negative results, after examinations repeatedly and carefully practiced, enable us to affirm the non-existence of tuberculosis. Grancher has recently come forward to urge the profession not to neglect the physical signs, which have hitherto been of such service to the profession. Nor should they be neglected; but, says Professor See, they are to be relegated to a second rank in precision.

I have cited but few of the authorities who have been busy with hand and eyes on the subject of the clinical importance of the bacillus in the diagnosis of tuberculosis. Some have raised their voices against too great reliance upon it as a factor, and some, as Formad, still prefer to consider it but one of the causes of tuberculosis.

But I am safe in saying that if the conclusion of German See may seem too sweeping to some, enough proof has been adduced to show that henceforth microscopic examination of the sputa in lung diseases is to be considered as necessary in the diagnosis of lung diseases, as the test tube and microscope have been for years in the diagnosis of kidney diseases. Nor can we ever call any diagnosis of a pulmonary disease complete till we have, by its means, answered the *one* important question—are bacilli present in the sputa?

The time and expense which this examination entails upon the physician, will be more than compensated for by the certainty with which he can speak of the nature of his case. If he can treat the disease with no better prospect of success, he has the satisfaction of knowing why he fails.

SOME MATTERS HAVING A BEARING ON HYGIENE.

"Toussaint, having found the tubercular virus was diffused throughout the bodies of tuberculized animals, especially in

their muscles, took a piece of muscle from a *very fat beef*, whose lungs were filled with large caseous tubercles, and heated it on the gridiron until the thermometer marked 52° Cent. at the center=125.6 Fah. The expressed juice of this muscle he spread upon bread, which he fed, at two meals, to five rabbits placed in the same cage. All became tuberculous. In order to determine the maximum resistance of the tuberculous virus to heat, Toussaint submitted the juice of meat and defibrinated blood, to temperatures of 61°, 63°, and 65° Cent. (=131.8°, 147.4°, and 149° Fah.) upon a water bath. * * * These heated liquids of three different temperatures, were inoculated into three groups of rabbits of two each All became tuberculized, and a series of inoculations were made from each group, showing that the virus increased in activity with each series.

"Finding this heat was not sufficient to destroy the virus in the meat juice, Toussaint raised the heat to 70° and 71° Cent. (=158° and 159.8° Fah.), during a period of ten minutes, and with the juice thus heated inoculated two rabbits. These both became tuberculized, and from them a series of successful inoculations were made upon other rabbits.

"These new experiments go to show that the virus inherent in the flesh of tuberculous animals remains active, even when submitted to a heat of from 70° to 71° Cent.—that is to say, a heat sufficient to fit meats for use as a food."*

No one can fail to see the practical bearing of these experiments, upon the prescription of meat juices and raw meats. The bacillus preserves its activity under ordinary circumstances indefinitely. Raymond and Arthaud† found their culture fluids remained active after five months.

Vignal has subjected the sputum containing bacilli to conditions similar to those it would undergo when discharged from the lungs of patients upon the street.

After repeated desiccations and moistenings, and a continuous exposure for twelve days, he was still able to recognize the bacilli. With these he inoculated guinea pigs. The result of these experiments I have not yet seen.

It has been fully attested by many authorities, that the bacilli multiply in the sputum when desiccated or allowed to stand. I have also been convinced of this reproduction in specimens which I have been studying for many days in

* Contagion Vivante. Bonley.
† Archives Gen. de Med., 1883.

succession. The conditions for continuous infection with the bacillus are then present around every tuberculous patient, and these conditions intensify for a time, at least, when no measures are taken to destroy the bacillus-bearing excretions. This helps us to understand why tuberculosis clings to a location when it has once obtained a hold.

In the light of the parasitic origin of tuberculosis, the relation of hereditary and other predisposing causes is changed from what it has been.

Now, all that can be claimed is that (granting the bacillus is causal), by inheritance a person has an organism which furnishes a proper medium on which the bacillus can grow. That organisms differ in this respect has been clearly shown, and the doctrine of the influence of heredity testifies how wide-spread this notion is.

The condition of body favorable to the reception and growth of tuberculosis may be acquired. Bad or insufficient food; damp, dark apartments; insufficient ventilation; depressing emotions, such as worry, grief, and mournful contemplations, all lead to the development of "physiological misery," which furnishes the favorable soil for the development of tuberculosis. The inflammations of the respiratory apparatus and other organs have their influence as predisposing causes, in the reception and localization of the tubercular poison.

1. Cornil and Ranvier say *: "Not only around the granulations are the phenomena of irritation to be seen, *but at distant parts*, from which it is rational to suppose that the irritation has preceded the appearance of the granulations. In a word, the osteitis precedes the tubercles in the bone."

2. In the liver the granules (*i.e.* tubercles) developed in the inter-lobular tissue, are always preceded by an interstitial hepatitis. †

3. Says Rindfleisch: ‡ "I believe the catarrh is the earlier and the tubercle the later process," speaking of lung diseases.

4. "If inflammation can do nothing without tuberculous diathesis to determine the development of tubercles, it may,

* Pathological Histology, Am. ed., p. 215.

† Op. cit. p. 122.

‡ Ziemssen Cyclopedia, vol. 5, p. 648.

certainly, when this diathesis exists, hasten their development, and the evolution of their products."*

5. "Measles, whooping cough, typhoid fever, and diphtheria with pulmonary lesions, give place, especially in the last two, in the majority of cases, to simple bronchopneumonia, either sub-acute or chronic, but in individuals in a hereditary state of predisposition, it may become the point of departure of tubercular pneumonia."†

Recent investigations in Vienna have shown that injuries to the lung structure, by blows upon the chest walls, become the point of departure for tuberculosis, a fact long ago recognized by Drake among the flatboatmen on the Ohio and Mississippi.

The peculiar susceptibility of patients who have undergone amputation at the shoulder joint, to consumption, is of interest in this connection, showing that an injury in man as well as in animals, may determine an inflammation which, in so-called diathetic cases, precedes the evolution of tubercles, and conditions its localization.

Larrey‡ attributed the tuberculous glands which developed in the necks of young recruits to chafing with the high stocks which they wore around their necks.

M. Reclus thinks repeated irritations of the urethra and gonorrheas hasten the evolution of tubercles of the genital organs. Many times have I seen tuberculosis of the testicles consecutive to a blow.

Our observations, says Reclus, are in accord with those of Mongin. We think, as he does, that repeated "claps," and frequent attacks of orchitis, in an individual otherwise sound, prepare a sort of "local ground" proper to the development of gray granulations in the testicle. Tubercular meningitis sometimes follows caries of the petrous portion of the temporal bone, which of itself is rarely of tuberculous origin. Traumatism, a rheumatic disposition, are the causes which seem to enjoy the principal role in the localization of tubercular pericarditis.

Cases are on record in which there has been localization of the tubercular lesion in the hernial sacks of phthisical persons, while other organs remained free. (Cruveilhier, Brissaud.)

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* Fossagrives Phthisie Pulmonare.

† Jaccoud Phthisie Pulmonare, p. 84.

‡ Hanot, Rapports de l'inflammation avec tuberculosie, p. 13, et seq.

Likewise, persons under the influence of the tuberculous diathesis, on receiving injuries of the peritoneum or pleura, have died from extensive tuberculous lesions of these membranes, while lesions in the lungs remained at rest.* So the tubercular eruption which we find in alcoholic cirrhosis of the liver may be said to be dependent upon the irritation which alcohol produces in the territory of the portal vein.

The dispute which has prevailed for years concerning the etiology of Potts' disease of the spinal column, or hip disease, rests upon the same basis. The diathesis precedes, the injury localizes the manifestations, to the exclusion of other organs in many cases. The presence of the tubercular germ changes the character and intensifies inflammation in the same.

"Neglected colds" have, as we can readily see, a direct relation to the subsequent tuberculosis of the lung. The increased vascularity of the part, and increased secretion, are the evidences of the changes which occur in all cases previous to the eruption of tubercles.

The inflammation is not the cause of the tuberculosis, but it furnishes the soil on which the germ can most favorably rest and fructify, and thus determines the localization of the tuberculous manifestation; and furthermore, the testimony of Dreschfield and Formad, to which I can add my own, shows unmistakably that the mucus produced by these inflamed membranes is a good culture medium for the bacillus, and this, with the softened condition or erosion of the subjacent membrane, will allow their easy penetration into the tissues below.

Nor is the baleful influence of bronchitis confined to the ante-eruptive period; its occurrence in any case of consumption always gives an impetus to its progress, and the morbid process seems to be extended by auto-infection.

Thus we are able to understand the development of tuberculosis subsequent to pertussis, influenza, measles and typhoid fever. And this presence of a "culture medium" and succulent tissues below may, perhaps, explain why the contagion is active in one case, while it fails in another case, where the same exposure has occurred to a person with intact bronchial tubes. Certainly this possibility should be considered by every physician in regulating the duties of nurses who have the care of tuberculous patients.

* Hanot, *op. cit.*

With all this array of evidence, which has been accumulated during the last twenty years, there are some who deny the contagiousness and infectiousness of tuberculosis.

Its period of incubation after inoculation, by either gross tubercular matter or the pure bacillus cultures of Koch, Raymond and Arthaud and others, is as definitely ascertained as are any of the periods of diseases concerning whose contagion there is no manner of doubt.

In the latter class of diseases there is no more uniformity of localization of lesions than in tuberculosis, for it seems to be strictly limited to the connective tissues.

When the question is asked, why do not all persons have tuberculosis, if the bacillus is so widely spread and so universally as alleged? In addition to what we have said on this point we answer, we have only to appeal to the mortality tables, which the State of Ohio yearly publishes, to show that tubercular diseases kill more than all the other contagious diseases together. Thus in 1882, tubercular diseases out of a mortality for the year of 34,173, are credited with a mortality of 5,088, and this does not probably comprise all the cases, while scarlatina, small-pox, measles, diphtheria, together caused a mortality of 2,695. Certainly, when we reflect that every hamlet, as well as the cities, furnished its quota to this mortality from tuberculosis, it would seem enough has been adduced to throw the burden of proof on the objectors.

"Finally, let us suppose an area inhabited by healthy persons, who had never met tuberculous persons; it is evident tuberculosis will not appear there spontaneously. This experiment, unfortunately, appears to have been made in the islands of the Pacific, where the natives never had tuberculosis before they had communication with the civilized races."*

It is said contact with civilization has caused the development of tuberculosis among them. This should prove that our civilization has carried with it the bacillus of tuberculosis. When measles was introduced into the Faroe islands in 1846, where there had been no case for sixty-five years, there was no question but a new disease germ had been introduced. Why should there be any more question as to the introduction of a new disease germ, when we see

* Tuberculose parasitare. Debove.

tuberculosis begin its ravages where it had been hitherto unknown, after contact with the white races?

Why in this case, more than the former, should we leave at the side the most natural means of explanation, and say, this outbreak is due to "changed conditions of life and wearing clothes."* According to Wilkes, the only luxury in dress, which was indulged in by the natives, was tying the prepuce over the glans with a strand of red sea grass when the males would appear in "evening dress."

This paper could hardly be considered complete without some reference to the relation that the views herein set forth have to the treatment of tuberculosis.

The first question you will be asked in all cases, after you have avowed your belief in the existence of the bacillus tuberculosis or its relation to consumption as an etiological or accidental factor is, how are you going to kill it? for whatever your position on this subject may be, it is generally acknowledged that bacilli or bacteria in the organism, are therein for no good, and must be gotten rid of. This is the basis on which all anti-sepsis rests.

Granting that the bacilli are the sole cause of consumption, their destruction in the organism, even if it were possible, after they have inaugurated the morbid process, would not be sufficient to cure a phthisical patient.

Once inaugurated, there are co-existent inflammatory and septic processes going on in tuberculosis, which demand attention quite as much and even more than the parasite. Again, not only have we to consider the seed sown, but the soil on which it is sown, for no fact is better ascertained by mycologists than that microscopic spores are not indifferent to the soil on which they fall, or conditions of temperature and moisture.

The bacillus tuberculosis grows readily at the temperatures which are not inconsistent with the life of a warm blooded animal, while at a lower temperature they cease to reproduce or grow slowly. Hitherto the profession has recognized that certain conditions of the organization predisposed to consumption. The discovery of the bacillus has not rendered it necessary or possible to ignore this knowledge which has been acted upon for years.

It has been found by experimental therapeutics that this

* Wilkes' Exploring Expedition.

tendency to consumption can be removed. In the language of present pathology we say that the medium, the soil, has been changed so as to render it unfavorable for the growth of the parasite.

Hence, in the treatment of all cases which show from their organization a predisposition to consumption, use all roborant measures. These are open air occupations, light and airy rooms, full nutritious diet, with bathing, etc. In a word, such measures as are used now by all judicious physicians.

All catarrhs of the air passages, all inflammations, subacute or chronic, wherever occurring, should at once be taken cognizance of and treated promptly in order to prevent the localization of tubercular processes. This is especially necessary in those patients who have inherited what has hitherto been known as the scrofulous diathesis, *i. e.* that habit of body in which there is a tendency for inflammatory products to remain permanent.

Turning to the bacillus, we must keep in mind each consumptive patient is a producing center, and as he ejects his sputa from his lungs he is throwing out a living contagion, which Vignal, Formad and Dreschfield have shown can live and multiply, under favorable circumstances, external to the body, and Vignal has shown the bacilli preserve their infectious power after repeated desiccations and moistenings of the sputum, such as it undergoes when thrown upon the street.

We must institute measures for the collection and destruction of the bacillus-bearing sputa. When received in vessels they should contain a solution of mercuric bichloride, or a quite strong solution of one of the mineral acids. Carbolic acid, in a five per cent. solution, is said to be effective as a destroyer of bacilli. We have found the only effectual way of meeting cholera is by hygienic means. We don't try so much to kill the bacillus as to prevent its access to the patient by the distruction of his excreta. This is feasible in respect to consumption. We should insist upon the separation of the patient from all who are suffering from bronchial catarrh.

There is, I think, no proof that bacilli escape in the expired air of the patient, although it has been asserted by one authority, and the danger of infection arises from desiccated and pulverized sputum, which may be carried about

by currents of air, and thus be inhaled. Of the latter method of infection I entertain no doubt. As sulphurous and nitrous acids are fatal to the bacillus, it has been proposed to use them as inhalations, but so far this has been found impracticable, although Sormani reports cases evidently cured by residence where sulphurous vapors are constantly escaping in the air. Creasote and sulphuretted hydrogen have been used. I have used creasote in several cases. Thus far I cannot say I have seen any benefit from this form of inhalation, although it is strongly recommended by Burney Yeo.

I have made use of iodoform as an inhalation, and of its good effects in diminishing the expectoration, and the reduction of number of bacilli in the sputum ejected, I am thoroughly convinced, from numerous microscopic examinations. It may be used in solution or in powder, in a Wolfe's bottle, the volatilization being effected by placing the bottle in hot water.

And yet in these cases I am not inclined to think the action of the iodoform is upon the bacilli, but upon the cavities, rendering them aseptic, and thus limiting the destructive process going on in the cavities, and thus limiting the formation of a culture fluid favorable to their growth.

Although we have no means yet to act directly upon the bacillus, yet if time shall prove that it has the definite etiological relation to consumption, which it now appears to have, we can afford to wait, and follow the clear and unmistakable indications which we have pointed out as prophylactic, until some one shall do for consumption (and this will be done) what Jenner has done for small pox, and Pasteur has done for charbon and rabies. Prophylaxis, of the simplest kind, has not yet had a trial, and to be efficient must not be sporadic and intermittent but continuous and universal. Until these measures have been applied to consumption, as they have to the Russian plague and Asiatic cholera, let us not ask for an agent which will kill the bacillus. The first will confer, at least, a measure of safety while we are hunting for the second. The entire population must be instructed and made to feel their safety depends upon the faithful carrying out of measures for prophylaxis.

Certainly indifference among the people, ignorance and fatalism in the profession, never will succeed in the struggle with the most destructive of all diseases.

When the disease has reached the stage of consolidation or cavities, the same general rules should guide our therapeutics now as have in times past, when no bacillus was known. We must combat the fever, diminish tendency to congestions, facilitate the escape of the contents of cavities and other diseased products, in order to prevent septicemia, which is more destructive to the strength of the patient than the loss of lung substance. Indeed, *very large*, smooth walled cavities, with a free communication with the bronchia, so that their contents can readily escape, are by no means so unfavorable to the patient as small anfractuous cavities which can not be emptied. In this connection it is proper to remark that drainage of lung cavities evidently has a future, which may in time be worked out.

The nutrition must be kept up by all means, and residence in high places, where there is freedom from dust. Special forms of medication have not thus far been of advantage, nor can we expect it.

A STATE BOARD

OF

MEDICAL EXAMINERS.

H. J. SHARP, M. D., LONDON.

"*Resolved*, That the public good and the higher interests of the medical profession would be promoted by the establishment of a State Board of Medical Examiners; that such Board shall be independent of all medical schools, and be empowered to examine and pass upon the moral fitness and literary and medical attainments of all applicants for admission to the practice of medicine, and to grant license to practice medicine in the State of Ohio, to such, only, as shall have passed a satisfactory examination before said Board; that medical schools shall continue their functions of teaching and conferring the degree of M. D. only, with no power whatever to grant license to their graduates admitting them to the practice of medicine."

GENTLEMEN—In presenting the above resolution, I think it best to bring before you, in passing review, some facts bearing upon the status of the medical profession, as concerns educational requirements, term of study and attendance upon the didactic courses in the medical schools, and plan of licensing to practice medicine in this country, as compared with the same conditions in some of the countries of Europe, and to leave you to draw your inferences and conclusions, as to whether or not such reforms as are contemplated in this resolution are demanded.

The cry has gone up all over this land, for years past, demanding a higher standard of medical education. It has been sounded in all the keys of persuasive eloquence, in the various medical associations, that have for their province the promotion and advancement of medical culture and sciences, as well as in many of our medical journals, and in the addresses of many men, devoted and eminent in our profession. The car of progress is as surely moving forward

in the medical, as in any other learned profession, and the laggard must step from in front or go down before its wheels.

The resolution is but another form of expression for a reform that the wise and progressive members of our profession demand in the manner of admitting and licensing persons to the practice of medicine, and this demand is so reasonable and in conformity to a maintenance of that high estimation in which the doctorate in medicine has been held among the cultured people of other countries, and in the earlier history of our own, that, however impracticable of attainment it may have seemed a few months since, the day is not very distant when the reform contemplated in the above resolution will be realized. The active and better men of our profession, in all places, are becoming thoroughly alive to the importance of this question, and it only remains to be seen whether our own State, which is world-renowned for its greatness in the many interests and enterprises that stand for prowess in the battles of life, shall lag behind in all that pertains to the higher interests of the medical profession.

The above resolution is based upon the assumption that the great evil in medical education in this country is a lack of thoroughness in cultured general and scientific attainments, and that such is the case as a result of the motives that actuate those who contemplate entering the profession, and the plan of medical education adopted and pursued by many of our medical schools. In verification of this assumption, I may be allowed to refer to the many able and instructive addresses upon medical education that have appeared in the past few years, the time at my disposal being too short to more than refer to some facts and statistics bearing upon the status of the profession in this and some other countries, as to requirements of candidates for admission to the practice of medicine, including preliminary qualifications, the time that must be devoted to the study, including the course in the medical colleges, and the status of the individual after he has received the degree of M.D., in relation to the practice of medicine, and the ratio of medical schools, their graduates, and the number of practicing physicians to the general population, &c., in order to point out some of the defects of our own system.

In nine-tenths of our medical schools there is practically

no test of preliminary requirements. It is true that most of the circular announcements that are scattered broad-cast, preparatory to the opening of each session, make some general statement as to satisfying the faculty of the school, as to preliminary qualifications, but it would seem from the ease with which one may matriculate, regardless of any previous educational fitness whatever, that the statement is more prominent for its disregard than for its enforcement. This fact, together with the short term of study, including the course in the majority of medical schools, induces many young men to enter upon the study of medicine as the shortest road to a means of gaining a living, the result being that many are found among the matriculants of our medical schools, and who receive the degree of M. D., who would better have turned their attention to other pursuits, they being totally unfit, both by a faulty preliminary education and by the training in the medical schools during the short time required of them, for the practice of this high calling.

There are too many medical colleges in this country, and their requirements are too limited.

This becomes apparent when the ratio of medical schools to the general population, in this, is compared with that of other countries. With a population of something above fifty millions, we have some ninety medical schools, including both the so-called *regular* and *irregular*, and before the law, the graduates of the homeopathic, eclectic and vitopathic schools, are vested with all the privileges possessed by the graduates of regular schools.

The ratio is about one medical college to every 500,000 inhabitants, and as compared with that of other countries, it shows that in medical schools, as in many other good things, the United States beats the world.

The German Empire with a population of about 42,000,000 has twenty-three (23) Universities in which the Doctorate in medicine is conferred; the Austro-Hungarian Empire, with a population of over thirty-six (36) millions, has six medical schools; Russia, with eighty-six (86) millions population, has eight; Sweden, with four and a-half (4½) millions, has two Universities that confer the license to practice medicine; France, with a population of thirty-six millions, has six academies that confer the Doctorate, and sixteen medical schools in which the diploma of Health Officer is

conferred, this diploma entitling the holder to practice medicine only in the department of France where it is conferred; he, however, is forbidden to perform the major surgical operations without the presence of a doctor; accordingly, the greater number of medical students take the degree of M. D., there being about 15,000 doctors and only about 5,000 health officers; Great Britain, with a population of thirty-two and one-half millions, has nineteen medical schools which confer the right to practice; ten, viz., the Universities, confer the Doctorate, the remainder bestow the various titles of licentiate, member and fellow.*

In the above, it may be seen, that in the six great countries of Europe having a high state of civilization and literary culture, the ratio of medical schools in which the Doctorate is conferred, is one to every four millions of inhabitants, or, in other words, the United States has nearly eight times as many medical schools in proportion to her population, as have the old countries of Europe.

Gentlemen, can it be that the ills to which flesh is heir, are so much more numerous in this country than in Europe, or that doctors are so much better compensated, or that they are held in so much higher and more honorable esteem in this country, that this disparity should exist? Nay, gentlemen, I am sorry to say that it is, rather, due to the ease and facility with which the article is produced, and unless we place some kind of protective tariff upon the product, we cannot blame an over-confiding public if they accord equal honor and patronage to the most blatant quack and charlatan that is given to the article branded M. D., and carrying the stamp of some legalized medical school.

The market is already glutted, and every season witnesses the accession of the "*new doctor*" to every crossroads and hamlet in this broad land. The party of free trade in the manufacture of doctors has dominated our high calling long enough, and it is high time for the protectionists to come to the front.

The course of study as required and pursued in our medical schools is too short. With four or five exceptions, medical colleges announce annually as requirements of applicants for the degree of M. D., that they shall present a certificate of preceptorship, and shall have attended two full courses of lectures, the last of which shall be in the institu-

* Statistics from Prof. Pepper's tables.

tion conferring the doctorate. The certificate and attendance upon the two courses of lectures are supposed to cover a period of three years devoted to the study of the profession. How little this certificate of preceptorship may amount to as evidence that the holder has devoted his time, while not in attendance at the medical school, to medical studies, let those answer who have watched the path trod by the average medical student. Who cannot recall many students who have been compelled to devote the time supposed to be employed in medical studies under the tutelage of the preceptor, to teaching, to the handiwork of some trade, the duties of a clerkship, or like vocation, in order to replenish a depleted exchequer, and furnish funds to defray the expenses of an approaching term at a medical college?

Now, gentlemen, I have not a word of disparagement to say of the young man who thus constitutes himself the architect of his own fortune. Nay, much more, I would be the first to uncover before the honored self-made men of our profession, many of whom are enshrined in the golden memories of their colleagues, and in the grateful recollections of a devoted clientelle, but in this day of medical progress, it is not enough that one shall, of the three years that are supposed to be devoted to preparation for the practice of medicine, employ about one-half of that time in pursuits foreign to and disconnected with such study.

With the four or five exceptions above named, the two courses of lectures in our medical colleges extend only through about five and a half or six months of each year, making, in all, eleven or twelve months of instruction, including hospital and clinical experience and study, that the candidate receives.

Now, considering that these months comprise the chief instruction that many receive, how proficient and thorough will they become in the various branches of Anatomy with Dissection, Chemistry and Practical Chemistry, Physiology and Histology, Materia Medica, Pathology, Practice of Medicine, Surgery, Gynecology and Obstetrics, Laryngology, Ophthalmology, Legal Medicine, Microscopy, and the numerous other collaterals to be found in the curriculum of a well regulated medical college? And yet, after these twelve months instruction, not exceeding three or four per cent. of the applicants for the degree of M. D., on

an average, are rejected, but receive their degrees, constituting them legally appointed for the practice of medicine.

In comparison with the above, we find that in the German Universities the course in medicine extends over four years, of nine and one-half months in each, or about thirty-eight months in all, and the course is upon the graded plan. There are two examinations in course, one at the end of the second year, upon anatomy, physiology, chemistry, physics, botany, zoology and mineralogy; the other at the end of the fourth year, upon the remaining branches, and, after these a final examination by each professor in his department, and after passing this examination and presenting a written thesis, the candidate receives the degree of doctor of medicine.

The license to practice, however, can only be obtained by passing the State examination, which is conducted by a board composed of the professors of the different schools, appointed by the Ministry. This examination is very rigid. About 25 per cent. of those who have received the degree of M. D. in regular course fail to pass at this examnation. To stand for the State examination, however, it is not necessary that the applicant for license shall be a doctor, the doctorate having no special privileges attached to it, other than it admits its possessor to examinations for official positions. To matriculate in a German school, the applicant must hold a "certificate of gymnasium," which evidences that its holder possesses a thorough knowledge of Latin and Greek and, at least, one of the modern languages, besides his own, and of logic, the physical sciences and mathematics, or he must pass a preliminary examination upon Latin, Greek, German history, mathematics and the elements of mechanics. The "certificate of gymnasium" is required preliminary to entry in all of the medical schools upon the continent, excepting in France, in which they require a "certificate of grammar," which evidences some acquaintance with classical and modern languages, in addition to a thorough knowledge of history, geography, arithmetic and the elements of geometry in the preparatory schools, but to matriculate in an academy the applicant must hold the degree of Bachelor of Arts or Sciences.

In the Austro-Hungarian Empire the course extends over a period of five years, of nine months of each year; in Russia, over five years, with examinations at the end of

each year. Upon passing the final examination upon all of the branches of the course, the candidate receives the title of physician, then, after receiving this title, and undergoing a written examination and presenting a thesis, the degree of M. D. is conferred. In Sweden the course extends over a period of not less than ten years. In France, it extends over four years, of ten months each year, and is pursued upon the graded plan. In Great Britian the course extends over a period of four years, each comprising a winter session of six months and a summer session of three months. To matriculate, the applicant must either hold the degree of Bachelor of Arts from a recognized collegiate institution, or must pass a preliminary examination upon English grammar and composition, arithmetic, algebra, geometry, Latin translation and composition, and upon one of the optional subjects, Greek, French, German or elementary mechanics.

The examinations, two, one at the end of the second and the other at the end of the fourth year, are very rigid, and conducted before a board composed of professors in the schools and physicians disconnected with the schools. As an example of the severity of the examinations, I may state that of the candidates only about 75 per cent. pass.

After passing the final examination, the candidate receives the title (differing in the different schools) of licentiate, member, fellow, bachelor of medicine and master of surgery or doctor of medicine.

In Edinborough, the degree of M. D. is only obtained after the degrees of bachelor of medicine and master of surgery have been taken, and after two years of actual practice.

I may not close this comparative review of medical education without calling attention to another feature of medical schools in this country that is very greatly to be lamented, and which, perhaps, is the strongest factor of all that leads to whatever faults may be urged against our plan of medical education and the license that is conferred with the diploma of the medical colleges. With two or three exceptions in our medical schools, the teachers are dependent upon the size of their classes for whatever compensation they receive as such. This is an evil which can only be remedied by substantial endowment, and as long as it shall continue, will militate against that thoroughness

that is demanded by the profession, and that would result from a high standard of preliminary requirements and lengthened courses in didactic instruction.

In all of the medical schools of Europe the professors receive fixed salaries, and are in no way dependent on the size of their classes for any pecuniary benefit, excepting in Great Britian, where, as in our own country, the salaries of the professors depend entirely upon the size of their classes, their compensation being paid from fees derived from the students. It will be observed, however, that the degrees bestowed, are not, alone, dependent upon the recommendation of those who have been directly concerned as teachers, but upon the recommendation of a mixed board, composed partly of members of the profession disconnected with the schools.

I believe the above plan is that which should be adopted in all medical schools, and especially those unendowed institutions in which the teachers depend entirely upon the fees derived from their classes for whatever pecuniary benefit they receive.

For the foregoing data, having reference to foreign medical schools, I am largely indebted to tables and statistics appended to an able and scholarly address, introductory to the 112th course of lectures in the medical department of Pennsylvania, delivered by Prof. Wm. Pepper. These sketches were prepared by him from data, gathered with great pains and carefulness, in answer to a series of questions forwarded, through the Department of State at Washington, to the proper officials in these various countries, and are, therefore, trustworthy and reliable.

It will be seen from the above reference to foreign medical education, that the shortest time required to be devoted to instruction in medical schools, is four years, of nine months each year, or thirty-six months in all, while in most it is nearly five years, and in one ten years.

Is it then unjust or presumptuous to criticise the eleven or twelve months as the average time required of medical students in attendance upon the didactic course of instruction in this country?

It is not my province, much less my wish, to stand before this intelligent body of physicians, and speak in broad and unqualified disparagement of the high order of culture, and scientific and skilled attainments, that distinguish the pro-

fession in our country, and especially of the revered and honored teachers that are to be found in our medical colleges, neither as an inconsistent scold, would I utter an indiscriminate tirade against medical colleges, for that among them are some that give thorough courses of instruction, with well approved facilities and able faculties, with you all, I agree; that there are some that are unworthy the name, you doubtless will all, with me admit.

To be more specific would be unbecoming, to be less truthful would be unjust, hence I claim that the ease with which a charter may be obtained for establishing medical colleges, and the ease with which one may complete the course and receive a diploma, and the fact that a diploma from any chartered medical college constitutes its possessor a legally appointed practitioner of medicine, brings into the profession many who are not duly qualified, and it is high time that some plan should be adopted by which these evils may be remedied.

"So long as the portals of our medical colleges are thrown wide open and every inducement is offered for young men to come up from the highways and by-ways, without regard to preliminary qualifications as to education and culture, and in which after two terms of less than six months each, they are graduated and appointed with all of the legal rights to practice medicine and surgery, so long will the over-production of doctors continue, entailing upon the profession, at large, the responsibility of a weakened public confidence and a want of social respect for the low status of general and scientific culture that the profession is charged with. 'Every ignorant man,' says Dr. Geo. E. Paget, 'has an injurious influence on the estimation in which the entire body is held! His demerits have a tendency to lower us throughout the circle in which he is known. The want of confidence in him, and the want of respect for him, beget distrust and disrespect for the profession in general. A profession will be judged, not by a few shining lights, but by the condition of the body.'"*

The short time required to be devoted to the study of medicine, and the ease with which the goal of legal privileges may be reached, result in the over-production of physicians in this country. There is no other country in

* From address delivered in 1881.

which the number of physicians is so great in proportion to the general population as in this.

Here, there is one physician to every six hundred of population, there being about 90,000 practioners of medicine and surgery in the United States, whereas in the thirteen other countries referred to in Dr. Pepper's tables, there is one physician to every 3,800 inhabitants. Annually there are as many persons, by virture of diplomas conferred by medical schools, licensed to practice medicine in the United States, as in all of Europe, there being annually about 4,000 new doctors turned out in the United States, while in France there are less than 700, in Germany about 300, and in Great Britian about 1,700, while of the other countries I have not data from which to speak, but it is safe to say that their quotas, added to those given, would not exceed the 4,000 of our own production. In conclusion, I claim in the interests of the resolution before you, verification of the following propositions, viz:

1st. That we would secure thereby a higher order of medical education.

2d. That quackery, charlatanism and kindred evils, would thus be more effectually controlled and finally abated.

3d. That Homeopathy, Eclecticism, Thompsonianism, and all such kindred delusions, whuld be most effectually disposed of.

I have already anticipated my first proposition, in what has been said concerning some defects in our plan of medical education, and licensing to practice, and it only remains for me to say that the plan of constituting this Board, By which its members shall have no interest in directing the medical education of those who shall come before it for examination, will assure such a test of their fitness in literary and medical attainments, that only those who can evidence a high order of merits, would be granted license to practice medicine.

It has become the by-word that our State has become the favorite trysting ground for all manner of quacks and charlatans, and this has become more apparent since our sister States have secured the passage of laws depriving them from practicing their nefarious methods within their borders.

At present, under the Statute regulating the practice of medicine in our State, it is almost impossible to convict one

of practicing medicine illegally, however notoriously his methods may savor of quackery and charlatanism. Then, furthermore, many who are graduates of some reputable medical colleges, hold the privileges granted through their diplomas in such low esteem that most naturally they adopt the methods of the quack and charlatan, and in this they are supported by an undiscriminating public. For this weakened public respect, the profession may thank itself, for it is but a natural result from the low standard of attainments of many of its representatives, and the manner of licensing them to practice.

That Homeopathy, Eclecticism, and such kindred delusions, would, in this way, be entirely abated, I do not claim, but that they would cease to assert themselves, successfully, I verily believe. Let every applicant for license to practice medicine be required to pass a carefully conducted examination before an impartial and competent board of examiners, and I think he will hold the science of medicine in such high esteem as will preclude adherence to special designations.

Then we may hope that when thus firmly anchored in the fundamental principles and the broad and lofty teachings of the calling as a true art and science, its votaries will no longer consent to be dubbed Allopathists, Homeopathists, Eclectics, Botanists, and so on to the end of 'isms and 'pathies. Then there would no longer be that mercenary use made of special designations in name and pretension to cater to an over-weaning public, for I believe that whenever the title of doctor of medicine is held in the estimation of the profession themselves, at what it formerly signified and now should mean, viz: learned in the art and science of medicine, then honorable and conscientious men, bearing the title, will no longer yield adherence to *special dogmas*, or *specific nonsense*, and the few who would continue to practice under these designations, would find fewer patrons of their seductive delusions.

THE PUPILS AS A FACTOR

IN

Diagnosis and Prognosis.

BY H. P. ALLEN, M. D., COLUMBUS.

I think I will not be considered narrow-minded, nor as one too indifferent to the importance of all evidence which will, in any way, be an aid to the diagnosis of disease, if I say that the visual apparatus is, when carefully and understandingly studied, of inestimable value to us as diagnosticians. Further, I may say that in the study of this apparatus the pupils will, oftener than any other part seen with the naked eye, furnish us with a clue. Their importance is recognized by all practitioners. Even the novice will, in every case of any gravity, almost unconsciously—perhaps I may say mechanically—examine the pupils. He feels that this is the thing to do, though I fear he does not always know for what he is looking, nor how he is to interpret the evidence there presented.

I think that no excuse is necessary for presenting this paper. It will contain but little that is original. Important work has been done in this field, especially by foreign writers, and I shall present simply, in as brief a manner as possible, the results of the labors of such men as Forster, Ferrier, Munk, Goltz, Charcot, Leeser, Mauthner, Brown-Sequard, Iwanoff, Budge, Meynert, Adamuck, Donders, and others.

We have related to the iris, and in such a manner that each has an important effect upon its movements, the four great divisions of nervous fibers—the sensitive, motor, sympathetic (including the vaso-motor and musculo-motor) and

special, the three former directly, the latter (the optic) indirectly.

Upon the integrity of four nerves, the trigeminus, motor-oculi, sympathetic and optic, depends the normal size, form and reaction of the pupil. Any marked exaggeration or diminution of the function of either of these nerves manifests itself through some change in the condition or movements of the iris. Further, upon the integrity of many portions of the brain and upper spinal cord depends the integrity of these nerves, and hence indirectly the integrity of the iris, and upon that of course depends the condition of the pupil. So delicate is the adjustment, and so sensitive to slight changes is the nervous supply, that the pupil has been called by Schiff "the most delicate esthesiometer.' Another speaks of it as "a fine balance, the slightest irritation of which produces a reaction, the slightest interference suspends its function." Another speaks of the pupil reflex as "the most delicate of all reflexes." Have we not then a right to believe that much that will be of vast importance can be learned from a study of this part?

Some review of the anatomy and physiology of the nerves concerned will be of use as a prelude to the consideration of the pathological conditions.

The Optic Nerves—If we trace these nerves backward from the eye-ball, (each nerve containing, of course, all the fibers from the corresponding eye) we come first to the chiasm or optic commissure, resting upon the optic groove of the sphenoid bone. Here the fibers of the two nerves partially decussate, and if we trace, for instance, the left optic tract backward from this point, (it containing the fibers from the corresponding halves of the retinæ,) we find that after giving off (or more strictly receiving) fibers from the region of the substantia perforata anterior—the "basal ganglion" of Wagner and Meynert—it passes backward and outward along the base of the brain, winds around the crus cerebri and at about the location of the corpora geniculata, (*i. e.* at the posterior extremity of the optic thalamus) it divides into two so-called roots. One of these, probably containing the fibers which crossed in the chiasm, passes into the corpus geniculatum externum, and, probably, from there through the optic thalamus and posterior third of the internal capsule to the surface of the hemisphere, terminating, if we accept Ferrier's investigations, in the gyrus

angularis, or, according to Munk, at the surface of the occipital lobe. This root contains part of what we may call the "visual perception" fibers. The one that more directly concerns us, however, is the inner root. It passes from the corpora geniculata through the brachia to the corpora quadrigemina. According to Ferrier, these fibers are the direct ones (from the left eye in our case) which then mostly pass to the right hemisphere to unite with the fibers which crossed in the chiasm at the visual center for the left eye. Now, it is pretty well established, by the experiments of Adamuck, (Utrecht, 1869,) Wagner, Meynert, and others, that those of the optic nerve fibers from each eye, which serve for the transmission of the reflex light impulse go, not to the surface of the hemispheres, but to the corpora quadrigemina, and more exactly to the inner posterior portion of the nates. That here, in other words, is situated a center, receiving on the one hand fibers from the optic nerves, and giving off on the other hand fibers which go to the sphincter pupillæ muscle as part of the oculo-motor nerves. I may say here, that those fibers which run to the pupil reflex centers in the corpora quadrigemina, are called "Meynert's fibers," and for the sake of brevity, I shall use that term in speaking of them.

Before considering this center, a word as to the *oculo-motor nerve*. This nerve, so far as it interests us, supplies (through the medium of the ciliary ganglion) the sphincter pupillæ muscle, the contraction of which diminishes the size of the pupil. Recent investigations indicate that this nerve also has a cortical center which, according to Ferrier and Ecker, is located at the posterior portion of the first and second frontal convolutions; but as the full functions of this center are probably not yet developed, we can consider the nerve as taking its origin, in a common nucleus with the patheticus, from a collection of gray matter situated near the raphe and along or near the floor of the aqueduct of Sylvius and floor of the fourth ventricle beneath the corpora quadrigemina. According to Volkers and Hensen, a portion of this nucleus may be called the "accommodative center," and this latter again considered as made up from before backward of the centers for the ciliary muscle, sphincter pupillæ, and internal rectus respectively. These different centers then considered together, form part of the

nucleus of the oculo-motor nerve, which leaves the brain substance just in front of the pons Varolii, anterior and internal to the crus cerebri, runs forward along the base of the brain and the upper and outer wall of the cavernous sinus, then through the sphenoidal fissure to the orbit, where it supplies *directly* nearly all the muscles of the eye-ball and the levator palpebræ superioris, and *indirectly*, through the ciliary ganglion, the ciliary and sphincter pupillæ muscles. This latter branch is the one that chiefly concerns us.

We have now traced, centripetally, the optic nerve fibers which transmit the light impulse to a center located at the posterior portion of the floor of the third ventricle, or beneath the aqueduct of Sylvius, or more likely in the anterior pair of the corpora quadrigemina, and have shown that from this center proceed fibers which accompany or form a part of the oculo-motor nerve, and are distributed to the sphincter pupillæ. Now, let us study, for a moment, the physiological bearing. We will call this center the "pupil contraction center." Stimulation of this center will produce contraction of the pupil, and physiologically there are but two stimuli which have this effect, and they are, first, light falling upon the retina, which, through the optic nerve transmits a stimulus to the pupil contraction center, the expression of which is contraction of the pupil through the medium of the oculo-motor. Here we must note that the illumination (e. g. of the left retina) produces not only contraction of the left pupil but equal and simultaneous contraction of the right, the former being called the direct, the latter the consensual reaction, and this permits us to say that *the centers of the two sides must be connected with each other, and with both optic tracts and nerves.* The second, might be called the volitional stimulus, since it accompanies accommodation for near objects, the willing to do which, produces three active results—contraction of the internal recti (convergence of the visual axes), the ciliary and sphincter pupillæ muscles. The pupil effect, in this case, is produced, of course, directly through the center and the oculo-motor nerve without the intermediation of the optic nerves.

I must mention here that Bechtereff has, after experimentation, concluded that the fibers of the optic nerves which go to the "pupil contraction" center, leave those nerves at the chiasm and follow some independent course.

That does not invalidate, however, the general statement which I have given, and the foregoing anatomical and physiological data can be accepted as *facts*, founded on careful experimental and pathological studies. I wish I might say as much for the conditions governing dilatation. To those let us now turn.

It is not necessary for us to discuss the question as to the existence or not of a true dilator of the pupil, for whether we accept the studies of Iwanoff, who maintains that there is a muscle in the iris purely and simply a dilator, or those of Grunhagen and others, who claim that dilatation is brought about through contraction of the unusually thick muscular coat of the blood-vessels of the iris, the fact remains that there is a muscular arrangement of some kind, presided over by the sympathetic system, and that irritation of certain portions of this system does produce dilatation of the pupil. Admitting that such is the case, let us study the nervous apparatus which controls it. We have not here to study any centripetal fibers running from the eye to any "dilator" center, as there exists no physiological necessity for such fibers. Beginning at the center then, at the brain, we find that there have been and are yet conflicting opinions as to the origin, course and connection of the nerves distributed to this part of the iris. Without entering into the discussion, I will say, that the commonly accepted opinion, in regard to them, is as follows:

Somewhere in the medulla oblongata there is a nervous center (though not definitely localized) which is called the "oculo-pupillary" or "dilatation center." This is, no doubt, in intimate connection with the vaso-motor center, though neither the two, nor their efferent fibers, can be distinctly separated. We must then consider the musculo-motor and vaso-motor fibers together. From this center or centers proceed fibers which pass through the cervical spinal cord and leave it through the roots of the two lower cervical and first and second dorsal spinal nerves, there to become a part of the cervical portion of the sympathetic. This portion of the cord, *i. e.* between sixth cervical and third dorsal vertebra, contains the "cilio-spinal center of Budge," so-called because he supposed this to be the true center. But Salkowski afterwards located it in the medulla.

The experiments of Adamuck and Knoll seem to indicate that the nates even are in relation with the dilator fibers. From their exit from the spinal cord these fibers pass upwards and mostly through the superior cervical ganglion, then enter the skull chiefly as a part of the carotid plexus, then to the cavernous plexus surrounding the cavernous sinus; from this point to the eye, *via* the ciliary ganglion, and partly, perhaps, through the Gasserian ganglion, the nasal branch of the ophthalmic division,and the long ciliary nerves. In this way, the center in the medulla oblongata is in connection through this labyrinthian course with the muscular fibers of the dilator, and the muscular coats of the blood-vessels of the iris.

Now, in considering the physiology of dilatation of the pupil, in other words, excitation of the center or nerve fibers controlling it, we find that we have to deal with entirely different conditions. Under ordinary conditions, dilatation of the pupil occurs only *passively* through relaxation of the sphincter. This is the case with relaxation of accommodation, shading of the eyes and during sleep. *Active dilatation, i. e.*, from active participation of the dilator, occurs only reflexly through excitation of the medulla center (save immediately upon section of the *trigeminus* branch), and this may be brought about through sensory or psychical excitation. As examples of the first, tickling of any part of the body, irritation of mucous membranes, especially of the intestines, hypodermic injections, cutaneous incisions, irritation of muscles and tendons, of cervical sympathetic, of posterior spinal nerve roots, (Cheaveau) posterior columns of spinal cord, faradization of different parts of the cortex, (Brown-Sequard) irritation of hyperesthetic skin (Smeichler), &c. Remembering the contiguity of the various centers, respiratory, circulatory, uterine, intestinal, swallowing, mastication, vomiting, &c., we can easily explain dilatation following deep inspiration and expiration, violent muscular exertion, mastication, swallowing, beginning labor pains, &c. Among psychical causes we may mention (to quote Leeser),—among lower animals,—a maddened cat, or a combination of strong light and loud noise, the former of which would produce contraction, this being overcome by the *fear* acting mentally. The same effect can be produced in children, by suddenly grasping their hand or shouting, while the eye is strongly

illuminated, or in adults through raillery, threat, &c. We can say of this center, as of the sphincter center, that it is in communication with the center of the opposite side, since we have a consensual dilatation following sensory irritation of one side.

The Trigeminus concerns us only as to its first division—the ophthalmic. Irritation of this division produces contraction of the pupil, according to Merkel, by effect on sphincter center. According to Donders more peripherically, through connection with ciliary ganglion, and this latter seems to be proven by the experiment of dividing the oculo-motor and sympathetic nerves behind the ganglion, after which even, the irritation has the same effect (Donders).

Experiments by Magendie, in 1824, and later by Budge and others, also show the following: Section of this nerve produces *immediately* dilatation (Arlt), then slowly developing contraction (Budge), which in half an hour gives way to medium dilatation, these phenomena depending upon irritation of sympathetic, temporary paresis of sympathetic, and regaining of its temporarily disturbed function, respectively.

We have, then, in the iris, these two sets of muscular fibres which are, in one sense, antagonists, in so far as that under ordinary conditions each, by reason of a tonic condition of its center, overcomes the other and thus maintains the medium movable pupil. But we must remember that this tone of the centers is maintained in entirely different ways for the two, the one by the stimulus of light constantly falling upon the retina, the other, we can imagine, through continuous sensory irritation. Anything which disturbs this circuit, through irritation or solution of continuity, is evidenced by a change in the form or reaction of the pupils. The amount of blood in the iris also influences the iris movements, as Hansen and Volkers have shown that there is a slight contraction during systole.

The normal pupil varies between moderate limits at different periods of life. In childhood the average diameter is one-fifth to one-fourth inch. In adolescence, one-sixth inch (Henle). In old age still smaller, about one-eighth inch. The limits for all periods may be stated (Henle) as one-fourth to one eighth inch. Anything beyond this must be considered as abnormal dilatation (mydriasis), or contraction (myosis). These measurements are understood to mean during relaxation, *i. e.*, while the person is looking at

a distant object. The normal pupils should contract when illuminated, both directly and consensually, or while looking at a near object, and dilate when shaded, or when looking from a near *to* a distant object. In testing the movements of the iris we must always exclude adhesion to the lens capsule as the result of iritis.

Medium dilatation (one-fourth to one-third inch) may be the result of paralysis or paresis of the sphincter (paralytic mydriasis). If the cause lies in an interruption of light, reaction from a lesion of the retina or optic nerve, the dilatation will be unilateral, the pupil will have lost its direct light reaction, but will retain its consensual and accommodative reaction and myotics will have a partial or complete effect. If the lesion is in the same position, or of the optic tracts, but bilateral, we will have lost direct and consensual reaction, with retained accommodative reaction. If the lesion is of the sphincter center, or motor-oculi nerve, we will have, when one side only is involved, dilatation of that pupil, with loss of direct consensual and accommodative reaction alike for that side. If both sides are affected, then all three reactions will be lost for both pupils, with bilateral dilatation. Again, medium dilatation may be the result of irritation of the fibers governing the dilator (spasmodic mydriasis). This may be unilateral or bilateral, and depend upon irritative lesions situated anywhere along the course, from the medulla through the cervical cord and sympathetic, to the eye, and this equally from direct, reflex, or psychical causes. The light and accommodative reaction will be more or less prompt, sensible and psychical or central irritation without effect, while mydriatics will dilate rapidly and fully ad maximum, and myotics will with difficulty, if at all, cause contraction. Finally, the medium dilatation may be the result of combined paralysis of the dilator and contractor, (this being a rare condition,) the cause being mostly central in the region of the medulla, and all reactions will, of course, fail. This will also be the condition of the pupils in the moribund state, and after death.

Maximum dilatation (five-twelfths to one-half inch). This can only occur when paralysis of the sphincter is combined with spasm of the dilator, and is, of course, a rare condition, save from the action of mydriatics. The iris can be seen only as an exceedingly narrow band, and all reactions fail save occasional slight contractions from myotics.

Going in the other direction from a medium sized pupil, we consider first *medium contraction* (pupil diameter one-eighth to one-sixteenth inch). This myosis, from spasm of the sphincter, will be the result of irritation anywhere between the sphincter center in the corpora quadrigemina along the course of the oculo-motor nerve to the sphincter itself. This irritation may be direct or indirect. *Direct*, chiefly from beginning inflammations of the brain or its membranes, and especially of the basal portion, whether of the traumatic or idiopathic variety, or as the concomitant of general diseases through nutritive or pressure changes, or from neoplasms or extravasations. *Indirect*, chiefly as the result of reflex irritation transmitted from the trigeminus. This variety of contracted pupil, when of only moderate degree, will dilate somewhat from sensory irritation and mydriatics, but more rapidly than in health returns to its former condition of contraction. Myotics readily contract it ad maximum. When the degree is excessive the strongest irritation has no effect. According as the condition is unilateral or bilateral will the lesion of course be, the one or the other respectively. The latter is much the more frequent. Again, medium myosis (the so-called paralytic myosis) is the ocular expression of any interruption or destroying lesion in the course of the sympathetic, from the medulla center through the cervical cord and sympathetic to the dilator of the iris. The lesions leading to this result are mostly extra-ocular and the condition is vastly important in diagnosis. Especially is this true in relation to spinal diseases. As a part of a vaso-motor disturbance the pupils will be dilated or contracted according as the condition is one of spasm or paralysis In paralytic myosis the pupils, as a rule, respond readily to light and accommodative efforts, and under the influence of myotics, and but feebly to sensory irritation or mydriatics.

Maximum contraction (one-twenty-fifth to one-fiftieth inch) indicates a combination of dilator paralysis and sphincter contraction. This is the "pin point pupil." All reactions fail.

Before considering the effects upon the pupils of various diseased conditions, I must notice briefly the action of the more important drugs. For our purpose, we can divide all drugs having any influence upon the pupils, into two great classes, the mydriatics and myotics. Chief among the

former stands the classified group of mydriatics of the *Materia Medica*, including Belladonna, Stramonium, Hyoscyamus and Duboisia Myoporoides. If we consider their alkaloids, and take atropia as the type, we find that after it is introduced into the system the oculo motor is the first motor nerve to be affected.

The eye effects of this drug are so well known, that it is unnecessary to dwell upon them. The widely dilated immovable pupils, from paralysis of the sphincter and irritation of the dilator, are easily recognized. Rossbach has found that repeated local applications of a strong solution leads finally to paralysis of the dilator as well, hence, medium dilatation; but this would hardly occur, even with a lethal dose internally. The effect of the other alkaloids differs only in degree, not in kind.

Strychnia.—The action of this drug has been especially studied by Schiff, Hippal and Cohn. Poisonous doses produce dilatation, according to Schiff, through irritation of the dilator center by carbonic acid gas as a result of the muscular spasm and impeded respiration. This seems to be borne out by the observation that no dilatation occurs if artificial respiration is employed.

Curare dilates the pupil by paralyzing the sphincter, but as this occurs late in the poisoning (the oculo-motor being one of the last motor nerves affected, the opposite of belladonna poisoning) it is of little diagnostic importance, but would affect the prognosis.

Ergot, in poisonous doses, according to the experiments of Diez and Wright, produces marked dilatation in lower animals, and in a case of poisoning in man, from a very large dose, with final recovery (observed by Oldright), the pupils were also noticeably dilated.

Aconite.—In poisoning from this drug, dilatation is frequent, if not constant, though, according to Wood, there *may* be *contraction* when there are no convulsions. It probably acts as a depressant of the centers.

Among the class of *Myotics* stand most prominently Calabar Bean, Jaborandi and Opium.

Calabar Bean.—This drug, or its alkaloid eserine, produces with either local or internal administration, marked contraction. The effect follows even a moderate dose, and seems to depend (Donders) upon local action, producing spasm of the sphincter and paresis of the dilator. In the Liverpool

poisoning cases, where several children accidentally took large amounts of the drug, all but one of whom recovered (reported by Dr. Cameron), the pupils did not contract. The condition was apparently not carefully observed, but was probably dependent upon paralysis of both centers. This would indicate that the typical effect (contraction) does not follow dangerous doses.

Jaborandi.—One drop of a 2% solution of Pilocarpine used locally will produce marked contraction in thirty minutes (Leeser). This effect also follows the ordinary internal dose (Wood). It is overcome by atropia, and seems to operate centrally as well as peripherically.

Opium.—Until the introduction of Calabar Bean into the Pharmacopeia, this ranked as the commonest and most powerful myotic. Hypodermic injection of one fourth grain of morphia produces contraction in fifteen minutes. The effect is central. Atropia is its true antagonist, the one overcoming the other. One-fourth grain of morphia balances the effect of one-thirtieth grain of atropia, and *vice versa.*

Nicotine has a strong myotic action. Its effects have been studied by Surminsky. Small doses seem to irritate the sympathetic only, and produce dilatation. Medium and large doses produce contraction from peripherical irritation of sphinter and paralysis of dilator.

Chloroform.—Though there has been considerable difference of opinion as to the effects of this drug, the investigations of Westphal, Budin and Hirschberg, indicate that from inhalation of the drug by adult humans, there is, in the stage of excitation, dilatation, from irritation of dilator center, in the stage of narcosis, contraction, from paralysis of that center and irritation of sphinter center, in the stage of depression, which is the stage of danger, there is rapid dilatation from paralysis of the sphinter center, and these observers lay it down as a law that beginning dilatation during full narcosis in the adult is indicative of the greatest danger. If inhalation is not suspended and active restorative measures employed, death is the sure sequence. Certain it is, that if physicians will persist in using this dangerous anesthetic, they should be conversant with every sign of evil import, and if we have in the pupil condition one that can be relied upon, let us, by all means, bear it carefully in mind. I may say, here, that Demme

has shown that in children the opposite condition prevails, so that here the pupils would be no certain guide.

The effects of *chloral* are similar in all respects to those of *chloroform.*

Ether.—The effects of this drug upon the pupils have not, that I am aware of, been carefully studied and would be of little value, since the stoppage of respiration indicates distinctly the danger point.

Diseases Having an Influence Upon the Pupils.—Right here, I will state, that from the pupil conditions we frequently are able to detect simulated amaurosis, but I have not the time to treat the subject in detail.

In the consideration of this part of our subject, we will naturally expect that from cerebro-spinal and mental diseases will be drawn the greater part of our material. We will first consider those diseases which, so far as they can be classified, affect chiefly the oculo-motor nerve, either directly or indirectly, and which affection manifests itself either as an increase, diminution or abolition of its function. We have to remember that many or all the filaments of this nerve are often affected, and hence more or less complete paralysis of all the parts supplied, but on the other hand the pupil changes are often the earliest and frequently the only marked ones.

In the eyeball certain active changes of various parts, (especially those parts supplied by the *trigeminus*), such as inflammations of the conjunctiva, cornea, sclera, and plastic inflammation of the uveal tract, produce reflexly an irritated condition of the third nerve, *i. e.*, a spasmodic contraction of the pupil. Here the other subjective and objective symptoms will prevent our being mislead to the diagnosis of a more central trouble. In this place, also, belongs the often contracted pupil of variola, which disease, without structural eye changes, produces a ciliary irritation, leading through the *trigeminus* to reflex pupil contraction. Entirely different, however, is the paralytic dilatation seen sometimes later in this disease, as an accompaniment of amblyopia, which has been explained by Von Grafe as due to a retro-bulbar neuritis. In this connection, also, we must mention the contracted pupils accompanying spasm of the ciliary muscle, as occurring in hyperopes, jewelers, engravers, &c.

All diffuse inflammations of the brain substance or meninges,

whether simple, tuberculous, otitic, syphilitic, traumatic or cerebro-spinal, show in the early stage of irritation, in the stage of headache, vomiting, frequent pulse, &c., contracted pupils. In a suspected meningitis, dependent upon otitic suppuration, this is an especially valuable sign. Niemeyer mentions this symptom as an early and important sign of all acute meningitis. Later, in the stage of depression this gives way to a paralytic dilatation.

Cerebral apoplexy shows often contracted pupils (Berthold), while later again, in the stage of depression and paralysis, the pupils are dilated. This is often an aid in differential diagnosis, as in *embolism* and *thrombosis* the pupils are unaffected, or at least of uncertain value.

Meningeal apoplexy, occurring in the course of typhoid fever, shows (Griesinger) contracted pupils, while *uncomplicated typhoid* has, if any change is present, dilatation.

Small beginning tumors in the region of the oculo-motor center (Leeser) will produce a spasmodic contraction, followed soon, however, by reason of increased pressure, by a paralytic dilatation.

Tumors of convexity produce pupillary changes only through secondary pressure or inflammatory conditions.

An epileptic fit shows, at first, from vaso-motor spasm, (Forster) dilated pupils, followed almost immediately in the second stage of tonico-clonic spasm, by a spasmodic contraction with diminished or lost light reaction, while a *hysterical fit* has dilated or uncertain pupils with *retained light reaction.*

Sinus thrombosis of the basal sinuses may show, early, contraction (Heubner), while later, dilatation is constant, "wide immovable pupil," according to Knapp, due to periphlebitic exudate.

We have also to consider those conditions which, acting through pressure, obstruction, paralysis, &c., lead *primarily* to a paralytic dilatation. The light reaction, direct and consensual, and accommodative reaction, will be absent or present, according to the position of the lesion, as indicated in the first part of this paper.

Changes in the eyeball lead to paralysis of the sphincter, and this chiefly through increased pressure, as for example in glaucoma, with intra-ocular tumors of all kinds, when of any size, and serous inflammations of the iris, ciliary body or choroid. These conditions are mostly easily

recognized, though the two latter require an ophthalmoscopic examination.

Blows upon the eyeball cause a temporary paresis of the sphincter. The history of injury will here make the diagnosis easy.

Changes in the orbit, such as periostitis, tumors, hemorrhages and inflammations, lead through pressure to greater or less oculo-motor paralysis. The optic nerve is here usually involved.

Dilatation, as one of the symptoms of *complete oculomotor paralysis*, may indicate a lesion anywhere in the course of that nerve. As one factor in the *crossed paralysis* of the "oculo-motor-facial type," it must be borne in mind, but does not belong strictly to this paper.

Forster mentions dilatation as an early symptom of *Basedow's disease*, but others (Sattler, Von Grafe and Stellwag) deny its importance. In the few cases which I have seen early, it was always present.

Compression of the brain causes dilatation, and the opposite condition of the pupils in this and concussion, as laid down by all surgeons, is stowed away in the mind of every medical student early in his career. A few excellent authorities, however, consider the pupil changes as of less importance than was formerly supposed in the latter condition (*i. e.* concussion).

In progressive paralysis there is sometimes maximum dilatation, and this may be the only visible eye symptom.

Multiple cerebral sclerosis (Luebe) presents usually sluggish and dilated pupils, but as the forms are inconstant and various, the diagnostic importance is slight. Hammond says that when the pupil changes are combined with convulsive twitching of the eye muscles, the sclerosis affects the crus cerebri.

Fractures of the base of the skull cause paralysis of the whole nerve usually.

Though not belonging to this part of our subject strictly, we must here mention the passive dilatation from diminished illumination of the retina noticed with *cataract* and large *corneal opacities*. Here, when uncomplicated, the pupil reacts readily to increased illumination.

Myopia, of the medium and higher grades, also has dilated pupils, but with retained reaction.

We have also to consider the pupil changes as the result

of some lesion affecting the *retinae, optic nerves or tracts or Meynert's fibers running to the pupil contraction centers.* In the first three cases there will, of course, be some deterioration of vision, manifesting itself as amblyopia, amaurosis or hemianopsia. Embolism of the central retinal artery, ischemia retinae, neuro-retinitis, specific and albuminuric retinitis, detachment of the retina, and hemeralopia from retinitis pigmentosa, snow blindness, &c., produce, through diminished functional activity of the retina, a sluggish dilated pupil.

Theoretically, we may have either one optic nerve affected, one optic tract, light perception fibers of one side (*i. e.* beyond the giving off of Meynert's fibers, between that point and the cortex), Meynert's fibers of one side, both nerves or both tracts, Meynert's fibers of both sides, or, finally, bilateral lesion of the light perception fibers in the course of their path to the cortex. Several of the above conditions are understandingly rare, so *practically,* we have to deal with paralysis of one or both optic nerves or tracts.

Paralysis of one optic nerve, the anatomical expression of which is atrophy, occurs from all intra-ocular changes, which from pressure, defective nutrition or inflammation, naturally lead to that result, as for example, neuro-retinitis, glaucoma (more commonly bi-lateral however), embolism, orbital changes, periostitis, exostoses, tumors, &c. Unilateral amaurosis, dilated pupil, and lost direct pupil reaction are the results.

Paralysis of one optic tract, evidenced by bilateral right or left sided hemianopsia, results from pressure, degeneration or inflammation affecting any part of the tract from the chiasm to the corpora geniculata. The pupil changes with this condition are of uncertain value, and this is easily understood when we remember that both tracts are in relation with the sphincter center. The experiments of Knoll and the reports of Schweigger show that the opposite pupil is frequently dilated though the reactions are retained.

Paralysis of both nerves, or tracts (the visual and pupil symptoms of both being the same) producing complete amaurosis, bi-lateral dilatation and lost reactions, is the result of various cerebral and spinal diseases, from degeneration, increased pressure, tumors, hydrocephalus, basal inflamma-

tions, softening, progressive paralysis, intra-ocular troubles,—neuro-retinitis, retinitis pigmentosa, glaucomatous pressure, &c.,—or occurs as the concomitant or sequela of various systemic diseases,—puerperal diseases, scarlatina, variola, typhoid, severe pneumonia, gastric hemorrhage, suppressio mensium, uremia, &c.,—these latter operating, according to Von Grafe, through a retro-bulbar neuritis, or (Ebert) an interstitial edema, and the blindness may be transitory or permanent. Amaurosis, resulting from these latter causes, allows of a more favorable prognosis, when the pupil reaction is to any degree retained The lesion in these cases is of the optic nerves, though it was formerly supposed to lie bi-laterally along the central course of the optic fibers.

In a few cases of unilateral and bilateral complete amaurosis the pupils have remained unchanged. Heddaeus explains this by the theory that the visual fibers of the nerve lose their sensibility sooner than the reflex pupil fibers.

Finally, we have to consider briefly the effect of irritation or abolition of funct on of the sympathetic nerve fibers controlling the *dilator* of the pupil. It is not necessary here to reconsider in detail the conditions which enable us to differentiate between a lesion operating in this manner and one operating through the oculo-motor nerve. In fact, it is not always easy to do so, and we are frequently left in doubt as to just the part which is being played by the one or the other. Although it is in spinal and mental diseases especially that the pupil conditions, manifested through the sympathetic and vaso-motor system, are of importance, it will be better to consider the diseases or conditions having any influence as nearly as possible in the order of involvment, beginning with the medullary centre.

Spasmodic conditions of all kinds, in their early stages, are accompanied by an active pupil dilatation, by reason, probably, of the contiguity of the cramp and pupil centers in the medulla. Such a condition we have, for example, with a beginning epileptic or asthmatic attack, with strangulation, vomiting, &c. The often noticed dilatation in *trichinosis* (Muller), though due, perhaps, primarily to a reflex intestinal irritation, may come later, we may imagine through central irritation, from carbonic acid gas, as a consequence of difficult respiration and a weakened heart.

Gerhart states that with *mitral stenosis* an active dilatation appears at the end of inspiration, followed, during expira-

tion, by contraction, and explains the former as due to brain anemia. *Aortic insufficiency* operates also, probably, through anemia to produce a large pupil.

Tumors or a cerebral hemorrhage, when located in or near the medulla, we can imagine as producing at first an irritation of the center, leading to dilatation. But it is probable that paralysis of the oculo-motor is usually the cause here.

Reflex irritation of the medullary center is produced by intestinal troubles, such as helminthiasis, colic, passing of renal and hepatic calculi, and tabes mesenterica (Seiffert). Rossbach mentions it as the result of pressure on a mediastinal tumor. Schmidt, as the result of toothache. *Cutaneous nervous troubles and excessive venery* (Forster) exhibit also this dilatation. *Phthisis pulmonalis* shows always dilatation, probably as the result of impeded respiration and defective blood aeration.

With *neurasthenic asthenopia, i. e.* asthenopia from defective nerve tone, Wilbrand has noticed, in several cases, widely dilated pupils. The connection is not satisfactorily explained.

All irritative conditions of the cervical spinal cord, as hyperemia of it or its membranes, spinal meningitis, the early stages of tumors, myelitis and tabes dorsalis or the so-called "spinal irritation", as found in nervous anemic females, hypochondriacs, or following severe diseases, will likewise produce a spasmodic mydriasis.

All the foregoing spinal diseases which show a progressive and structural change, will of course later lead to paralysis of the sympathetic and a paralytic contraction. Such is the case with spinal tumors and cervical myelitis, and, to a most marked degree, in tabes (*locomotor ataxia*). In this latter disease, the pathology of which is gray degeneration of the posterior columns of the cord, the "Robertson's pupil"—*i. e.* very small, with loss of light reaction but more or less marked accommodative reaction (or with absence of this latter as well)—is one of the most marked and characteristic signs. In fact, so marked and constant is it as to be of great value in diagnosis. In no other disease does it occur as frequently, nor to so marked a degree, though the irregularly contracted pupils of progressive paralysis must be borne in mind. (Charcot states that diplopia is oftener a concomitant of the early pupil changes in tabes than in progressive paralysis.)

One peculiarity of this variety of myosis is (Smeichler) that atropia overcomes it to a moderate degree, but a long time is required (four or five weeks) for it to return to the former condition. The contraction is often of a different degree in the two eyes. This peculiar pupillary condition is explained by Smeichler as due to a reduced brain irritability as a result of the morbid process, and not directly dependent upon any structural change of the nerves or centers. The fact that pupil changes occur with this disease, when still confined to the lumbar and dorsal portions of the cord, disproves any direct structural extension. It is known, also, that different portions of the brain, cranial nerves and cord, may be simultaneously or independently involved, the commonest example being the combination of amaurosis and contracted visual fields (due to atrophy of the optic nerves), with this degeneration of the posterior columns. The former may be the earliest observed manifestation of the disease.

Knapp has published a case of *injury of the spinal cord*, showing the characteristic Robertson's pupils.

Mental diseases have often, as one of their initial symptoms, irregular dilatation of the pupils. Forster cites the case of a student who, without apparent cause, had this unequal dilatation. The student himself had noticed it, and it gave him much uneasiness. A few years later he died in an insane asylum, and Forster considers that the pupil changes were prodromal symptoms of his subsequent mania. It is reasonable to suppose that the mental effect of the knowledge of this possibility may have had a bad influence upon the student, and hastened the onset of maniacal symptoms. The same writer estimates that there is pupillary inequality in seventy-five per cent. of all cases of insanity. Rapidly alternating contraction and dilatation, the "springing mydriasis of Von Grafe," is also an indication of an approaching mental disturbance, and this author mentions such a case followed in nine months by acute mania. This pupil condition must not be confounded with hippus, which is likewise an alternative contraction and dilatation, seen sometimes during the healing stage of oculo-motor paralysis, and usually associated with nystagmus, the pathology of which is not well understood. Leeser mentions dilatation as an "almost constant accompaniment" of acute mania, and Seiffert says that paralytic contraction appearing in the course of acute mania indicates the early appearance of gen-

eral paralysis. Dilatation is also frequent in melancholia, but the theory of Austin, that dilatation of the right pupil indicates melancholia, and of the left, mania, has been disproven.

Progressive Paralysis of the insane, though usually showing irregularly contracted pupils (Hammond) may show dilatation (Westphal). The relations are not clearly understood. This is the condition that occasionally produces a complete myosis, *i. e.* paralysis of dilator and contraction of sphincter combined. Seguin says that the pupils are more apt to be dilated in general paralysis due to syphilis.

All pronounced irritations of the cervical sympathetic will produce a spasmodic dilatation. Cold and traumatism (Forster). Swellings, aneurisms, glandular infiltrations, carcinomata, &c., in the early stages, though the later course of these affections often lead through pressure paralysis to a paralytic myosis, and this will be exhibited unilaterally or bilaterally, according to the unilateral or bilateral implication.

The *hemicrania sympathico-tonica*, of Du Bois Raymond, expressed by unilateral sympathetic and vaso-motor spasm, will exhibit, with the headache and pallor, dilatation of the corresponding pupil, while the *hemicrania sympathico-paralytica*, of Mellendorf and Frankel, will show flushing and paralytic contraction.

We have yet to mention a few which show *primarily* paralytic contraction. We have seen that tabes dorsalis, injury of cord, progressive paralysis, tumors of cord, pressure on cervical sympathetic, &c., have this as their result, when fully developed, though this may be preceded in the stage of irritation by dilatation.

A *cervical cicatrix* has produced unilateral myosis from paralysis of sympathetic.

Concussion of the brain substance produces either contraction of the pupils, or a negative pupil condition.

The pupils will be contracted in *progressive muscular atrophy* if the cells of the cilio-spinal region of the cord are involved, but this implication is not constant.

Paralytic myosis appearing in the course of bulbar or *glosso-labio-laryngeal paralysis*, shows complication with progressive muscular atrophy or spinal sclerosis.

Spinal apoplexy of the cervical portion produces oftenest pressure paralysis, hence contraction, while *spinal menin-*

geal apoplexy shows more frequently a dilatation from irritation (Leeser).

As a matter of curiosity, I will state that observers have noted contraction of the pupils during the pause in *Cheyne-Stokes respiration* and dilatation when respiration is re-established. The former is explained through simultaneous paralysis of the respiratory and dilator centers, but the relation is not well understood.

Hemorrhage in the pons Varolii shows contracted pupils, probably through pressure on the medullary center, and this is one of the conditions which we have to differentiate from opium poisoning.

The *algid stage of cholera* shows also pupil contraction (Von Grafe), probably from paralysis of dilator center.

Contraction occurring with *alcohol amblyopia* (the commoner condition being dilatation) may indicate, according to Leeser (following Erismann and Leber), beginning degeneration of the medulla or spinal cord.

Paralysis of the trigeminus will produce contraction upon that side from paralysis of the accompanying sympathetic fibers. Borwinkle, however, did not observe it in his reported cases.

Finally, a word as to the pupil conditions as aids to diagnosis in cases of *unconsciousness* or *convulsions*, in which condition the patient is seen for the first time, and when it is often necessary to bring to our aid all evidences which will give us any hint as to the cause. It is unnecessary for me to mention the fact, that upon the correct diagnosis of the condition, the life of the patient often depends. To summarize the pupillary conditions in cases in which they are of any value, we have, dilated pupils in shock, syncope, alcoholic intoxication (as a rule), epilepsy (at first), hysteria (pupils responding to light), compression of the brain, and poisoning from belladonna, hyoscyamus, stramonium, duboisia, strychnia, curare (late), ergot and aconite; contracted pupils in opium poisoning (patient can be aroused), poisoning from Calabar bean (as a rule), jaborandi, nicotine, chloroform (in stages of narcosis) and chloral; also, with hemorrhage in the pons Varolii, epilepsy (stage of convulsions), pernicious fever, concussion of the brain (though sometimes negative) and apoplexy cerebri; pupils uncertain, often unaffected, in embolism, thrombosis and uremia.

I have thus, gentlemen, attempted to bring before you

the opinions of the most careful observers, as to the value of the pupils as a factor in diagnosis, and prognosis. I cannot say that we have here an infallible index, pointing to the exact condition and location of all diseases. Such an index never has been and never will be discovered. I do claim, however, that from their very sensitiveness and impressibility, and the ease with which they are examined, the pupils furnish us an invaluable aid, and if many points are yet involved in obscurity, if they seem at times to furnish contradictory evidence, I believe that this seeming is only the result of our inability to interpret the signs presented and follow out the relation between cause and effect.

IRRITATION OF THE PROSTATE.

BY R. HARVEY REED, M. D., MANSFIELD.

It is not surprising, when we study for a moment the anatomy of the prostate, and consider the anatomical relations it holds to neighboring structures, that it is a gland not only prone to certain forms of disease, but, when afflicted, an exceedingly obstinate organ to relieve.

In the prostate we have a trilobed gland located inferior to, and just in front of, the bladder; the middle lobe of which lies immediately under the neck of the latter. The entire gland is traversed by the urethra in a zone corresponding to a line dividing the upper from the middle third of the gland, from above downwards, and about the middle in the lateral direction.

In addition to the urethra the gland is crossed diagonally in its lower two-thirds, from behind, forward and upward, by the ejaculatory duct on either side, which terminate in the prostatic urethra, about two-thirds of the way across the gland (measuring from behinds forwards) in front of the veru montanum, in a small sinus called the uterus masculinus.

About two-thirds of the entire gland is composed of muscular fiber, in which are deeply rooted numerous racemose glands, which, with their ducts, make up the remaining third of the gland.

The ducts of the glandular structure proper converge and finally open by a score or more of excretory ducts on either side of the veru montanum, or urethral crest, only a few lines back of the apertures of the ejaculatory ducts.

This gland, which might be roughly compared in size to an ordinary black walnut, is surrounded with a fibrous

membrane, and supplied with blood from the vesical, pudic and hemorrhoidal arteries, which are associated with an intricate plexus of veins which communicate with the internal iliac veins. Whilst the gland itself is not freely traversed with blood vessels, it is, so to speak, hung in a hammock of arteries and veins, with the bladder on one side, the rectum below, and the penis in front, with the gland itself perforated by three tubes, and near which are the sub-urethral glands, the vesiculæ seminales, and vas deferens; while the entire body of the gland is traversed with ducts belonging to its own structure, all of which when united make its immediate anatomical structures, together with those affecting it from its neighbors, very complex; each differently affected, yet all more or less influenced by the other.

That the prostate serves a purpose in the generative act is, I think, now beyond any question; and that the act of copulation is not only modified by this gland, but the gland is more or less influenced by the act of copulation.

Although from comparative anatomy we learn that this gland is not only absent in the ruminantia, but double in some of the pachydermata, and single in the carnivora, while in the bird both this gland and the vesiculæ seminales are wanting, as is also the case in many of the amphibious animals and some species of fish.

With this brief review of the general anatomy of this very important and complex structure which is so located as to not only be affected with diseases peculiar to itself, but to sympathize with the afflictions of many of its neighbors, we will proceed to consider our subject proper.

DEFINITION.—*Irritation of the prostate* may consist of a true or sympathetic congestion of all or a part of the prostate gland; or a catarrahal condition of all or a part of the follicles and ducts of the racemose glands, or even involve the ejaculatory ducts; or it may consist of a hyperesthesia of the nerve filaments supplying the gland, any one, or all of which, will keep up an irritated condition of the gland, unattended with a chill, or acute inflammation, and the graver symptoms of the more serious and destructive diseases of the gland.

CAUSES.—The causes which lead to an irritation of the prostate are masturbation, inordinate sexual excitement of any kind, cold and exposure, traumatic causes, gonorrhea, sympathetic irritation from surrounding structures, such as

constipation, diarrhea, and hemorrhoids; or cystitis, acute or chronic, morbid changes in the urine, vesical calculus, etc.

SYMPTOMS.—In the milder forms of congestion the symptoms will not be more than a slight weight or fulness in the perineum, with, perhaps, a slightly increased desire to micturate, which is generally followed with an uneasy feeling in the region of the prostate, and in the glans penis. This morbid desire to void the urine is seldom observed in the early part of the day, but gradually increases toward the close of the day, and, unless rest is sought, will be the worst just before retiring.

When the recumbent position, with quiet, is resorted to, relief is generally obtained; hence we find this class of patients troubled but little at night, and nearly always feeling the best in the morning.

They seldom complain of having had a chill, or being troubled with febrile disturbance, loss of appetite, or of marked constitutional disturbance, other than that of having taken a slight cold, from which they can probably date their trouble.

A full sized sound can be passed with little or no difficulty, other than tenderness along the prostatic urethra.

A digital examination through the rectum will not reveal any perceptible enlargement but a general tenderness over the entire gland.

An examination with a bulbous bougie will not reveal any secretion extending from the gland of more than ordinary consequence, in the purely congestive form of this irritation.

Very frequently, when this difficulty has been allowed to go on without relief, whether the congestion causing the irritation is the consequent of a cold or the sequel of an attack of gonorrhea, or the result of continued sexual abuses, it will often cause a "catarrhal" irritation of the ducts and even the follicles of the gland, which may go on until it involves all or a greater part of these, and even extends to the ejaculatory ducts.

We have used the word "catarrhal" for the want of a better expression, although we do not believe this to be strictly a "catarrh" of these ducts or their follicles, for we have not a profuse discharge, in fact, scarcely any discharge or "flow" at all, but a blocking up of these ducts, with a thick gummy, gelatinous, semi-solid material, of a greyish

color, which, I am satisfied, in many instances, forms the nucleus for a prostatic or even a vesical calculus, or may degenerate into a calcareous mass, and remain in the ducts of the gland for years, a constant source of irritation and annoyance.

Under these circumstances the patient will come to you complaining of a fulness, accompanied with tenderness in the perineum, a frequent desire to urinate, and sharp pain and contraction of the acceleratores urinæ muscles in the attempt to eject the last few drops of urine, but little or no pain is complained of except just at this time, other than previously mentioned.

When there is hyperesthesia of the prostatic nerves the most prominent symptom is the occurrence of nocturnal emissions, ranging from every few nights to as often as twice in a single night. The patient generally suffers but little or no pain, although an examination with a sound or bougie, combined with a digital examination in the rectum, will reveal considerable tenderness of the gland, while the muscles will, in many of these cases, be found more or less flabby, and the patient generally pale, anemic and exceedingly nervous.

Not unfrequently patients will come to the surgeon complaining of being impotent, which a careful examination will prove to be caused by an irritated condition of the prostate gland.

Out of twenty cases reported by Prof. Gross, in the late edition of his little work on "Impotence and Sterility," he mentioned thirteen as having hyper-sensitive or irritable prostates in his chapter on impotence. The same author says, in his recent work just referred to, "I long ago reached the conclusion that impotence was generally induced by subacute or chronic inflammation and morbid sensibility of the prostatic urethra."

The same writer, in speaking of "atonic impotency," says "the exciting causes were chronic hyperesthesia and inflammation of the prostatic urethra."

In this disease we have a multiplicity of symptoms arising from a variety of causes, yet all producing an irritable condition of this gland, and seriously affecting the health of the patient.

DIAGNOSIS.—The diagnosis of this morbid condition is not always easy, although a careful consideration of the

foregoing symptoms will aid very much in guiding us in the proper direction. In the congestive form there is danger of mistaking it for cystitis, especially when the cystic inflammation is confined to the neck of the bladder.

CYSTITIS.	IRRITATION OF THE PROSTATE.
A constant desire to void the urine.	Micturition more frequent but not a constant desire, which is increased toward the afternoon and evening.
Great straining and tenesmus during micturition.	Weight and bearing down in the perineum, a slight smarting or tingling as the urine passes the prostate, accompanied with a prickling or burning sensation in the glans penis.
Urine ammoniacal, high colored, and often loaded with mucus and pus.	Urine not much changed excepting it is abnormally acid, and more highly colored.
Little or no tenderness of the prostate.	Marked tenderness over the prostate.
Pain and uneasiness over the pubes.	Pain and uneasiness in the perineum.
Epithelial casts of the bladder.	No epithelial casts of the bladder.
No casts of the prostatic ducts.	Casts of the prostatic ducts in the catarrhal form of irritation.
No pain in passing the catheter except after reaching the bladder.	Pain in passing the catheter marked along the prostatic urethra.
Desire for copulation not increased but usually diminished.	Desire for copulation increased rather than diminished.
Generally marked constitutional disturbances.	Seldom any marked constitutional disturbances.

In the catarrhal form an examination with the bulbous bougie usually aids in the diagnosis. This may be done by swabbing out the urethra carefully several times with a bulbous bougie, after which by gently passing a clean one past the gland and leaving it there until you pass the finger well into the rectum and keep up a process of kneading the gland gently, interchanging it for continued pressure; after keeping that up for a few minutes, gradually remove the bougie while the finger is still in the rectum, and making firm pressure on the gland.

An examination of the bulb of the bougie will generally reveal more or less exudation from the ducts of the gland; not unfrequently a partial mould of them.

A microscopical examination of this exudation will reveal mucus, mingled with epithelium cells, and in cases of long standing, occasional pus cells, mingled with crystals of magnesium phosphates or the triple phosphates, all combining to form one heterogeneous mass, which seldom contains any spermatozoids, and when it does they are usually inactive.

There is usually no marked, bloody or purulent discharge, or enlargement of the fibrous structure of the gland, or the usual clear, transparent "white of egg" discharge, so common in prostatorrhea, or interruption in the flow of the urine, which is usually not subjected to marked chemical changes in the same, as is so commonly seen in acute or chronic prostatitis and cystitis,

In hyperesthesia of the nerves supplying the prostate, we may have all or part of the symptoms above described, but the most prominent symptom is the constant annoyance with nocturnal emissions, or almost unresistible desire for sexual intercourse under the least provocation, which often induces them to resort to masturbation or unrestrained sexual abuses, which only increases their difficulty.

PROGNOSIS.—In giving a prognosis in this disease, too much discretion cannot be used by the surgeon; every part of the field must be diligently surveyed and carefully considered. Their habits, general health, mental and moral surroundings, will power, are all important factors, as well as the particuliar form of the disease; and unless the surgeon has taken all these into consideration, as well as that of having secured the entire confidence of the patient, he will be sadly disappointed if he relies on a favorable prognosis; otherwise, he can generally feel safe in giving his patient a fair amount of encouragement.

DURATION.—This difficulty may last for months, and even years, fluctuating up and down according to the surrounding circumstances of the patient, like the Wall street stock markets.

If allowed to go on without proper care, the patient is in constant danger of violent outbreaks in the gland structure itself, from the development of acute inflammation, or suppuration, calcareous degeneration, chronic enlargement, or

the complications arising from the involvement of surrounding structures, which may not only hazard the patient's health entirely, but sacrifice his life.

On the other hand, I have known it to yield in a few weeks to treatment, although I have seen it continue months and months before recovery would take place.

TREATMENT.—The first thing to do in the treatment of this disease is to gain the entire confidence of the patient, and then to ascertain the cause or causes producing the irritation. If it is the result of masturbation, endeavor, by all the means at your control, to prevent its continuance. I have seen patients who had this abominable and filthy habit so fixed on them that they would resort to it in their sleep, night after night, until I found it necessary to put tight drawers on them to prevent them from getting a hold of their penis while asleep, and committing the act automatically, as it were. Others, again, would knowingly and willingly yield to the temptation in the face of all my admonitions, and deliberately masturbate day in and day out, notwithstanding all my warning against it, until I was obliged to paint the glans penis with some irritant or vesicant, and thus destroy their pleasure in the act, until other remedies could be administered.

The remedies which have served me the best under these circumstances. have been bromides combined with ext. of viburnum prunifolium, or ext. viburnum opulus, tr. belladonna, ergot or camphor, to sooth the sexual excitement. Generally such tonics as strychnia, iron, quinine, arsenic, or the hypo-phosphites of sodium or calcium, are indicated, and prove highly beneficial in building up the general system, with which should be associated sufficient alterative to insure an active condition of the secretions. Whilst locally, if I cannot quiet the irritation by the use of injections of tepid water into the bowel, just before or immediately after retiring, to which may be added hydrate of chloral, I give a suppository of hyoscyamus combined with iodoform and camphor.

In the inflammatory or congestive form, especially when associated with scanty or high colored urine, I have found the following to be very beneficial:

℞	Pot. brom.	ʒij ;
	Aquæ dest.	℥j ;
	Ext. ergotæ	ʒj ;
	Ext. digitalis	ʒj ;
	Ext. gelsemii	ʒj ;
	Elix. glycyrrhizæ *q. s. ad*	℥iv ;

M. S. Teaspoonful between meals and before retiring.

The catarrhal form is more difficult to control than the congestive, owing to involvement of the ducts and follicles, which are exceedingly difficult to reach with remedies, and the danger of calcareous degeneration of their secretions.

In addition to the general tonic treatment above suggested, we will find in this form beneficial results from the use of iodide of potassium internally, combined with the external use of tr. of iodine along the perineum. But it must be remembered that owing to the preponderance of fibro-muscular tissue in comparison with the purely glandular structure, we do not get as decided advantages from the use of iodine and its compounds as we do in the enlargement and inflammation of the purely glandular structures.

In addition to general constitutional treatment, a line of local treatment should be promptly instituted in this form of the disease, which would secure as nearly as possible the discharge of all the semi-solid secretions which block up the ducts and thus interrupt the healthy action of their follicles, and which will, at the same time, stimulate them to healthy action.

This can be aided very much by the use of a solution of bi-borate of soda, used with a prostatic syringe, which aids in dissolving this thickened mucoid discharge, and thus facilitates its more rapid escape. Finely powdered borax, or the impalpable powder of boracic acid, applied along the prostatic urethra, will not only favor the discharge of this thick secretion, but act as a gentle stimulant to the diseased ducts and their follicles.

If a more decided stimulant is desired, a mild solution of argenti nitras of five or ten grains to the ounce, may be applied, with the porte caustique, or the parts dusted with iodoform or covered with the balsam of Peru; but none of these should be applied unless there is pretty positive evidence that the mucoid discharge has been pretty thoroughly removed first in order to permit direct contact to the diseased parts of these latter remedies.

Occasional kneading of the gland through the rectum will not only aid in emptying the engorged ducts, but act as a gentle stimulant to the gland itself.

Where there is hyperesthesia of the nerves supplying the gland, and thus keeping up, through sympathetic irritation, a constant desire to copulate, or inducing frequent nocturnal emissions, I have never found any thing which gave me such prompt relief as the use of carbolic acid applied with the porte caustique along the prostatic urethra.

Sometimes a single application, combined with tonics, sedatives or alteratives, as the case may demand, will be sufficient, but if not, a few at the most will serve to control the difficulty.

The use of suppositories containing suitable remedies applied with Harrison's *porte-remide*, will be found very beneficial, especially if introduced shortly before the patient retires.

The use of cold, in the form of pounded ice, filled into an eyeless catheter (gum preferred) and introduced into the bladder, and allowed to remain for a few minutes, is often serviceable in relieving the irritation.

The use of electricity may be of some service, although it is questionable whether it has any advantages over the remedies above mentioned, and it is a remedy we must use with care, lest we induce other troubles, such as neuralgia of the testicles, or even suppuration of the same, or induce inflammation and cause it to extend along the urethra, and thus complicate our trouble rather than relieve it.

In addition to all these remedies, the hygienic surroundings of the patient demand the careful attention of the surgeon in every particular, but especially should the skin be kept healthy, the diet judiciously guarded, in order to avoid if possible any bowel complication, and last, but not least, the general habits of the patient directed in a line of moderation in all things.

The years 1823 and 1824 were attended with such a frightful amount of sickness, that to this day, in Central Ohio, they are referred to as "the sickly seasons." Its center of virulence was probably in the Darby Plains region, now included in the counties of Madison, Union and Champaign. Those plains, in that early day, were prairie, with timber fringing the borders of the streams. The open prairie is a level, rich, black, alluvial soil, of considerable depth, and great fertility. At that day the open land was covered in summer with a rank, coarse, wild grass, from six to eight feet in height. During those seasons the fore part of the summer was attended with an unusual amount of rain-fall, producing excessive growth of vegetation; and the months of June, July and August were dry and with a protracted high temperature—the conditions that experience has taught the people over there are most conducive to sickness of a malarial type.

With about the commencement of the month of July—both seasons—a scourge of sickness fell upon the people. Its prodromic stage was sometimes for two or three days, and characterized by weariness, ostalgia and dull headache. Sooner or later the patient was seized with chilliness, which might last for several hours. A fever followed—of a remittent character, generally, but declining, later, if the patient survived, into an intermittent—which would run on indefinitely. Usually, about the second or third day, the patient became icteroid, and sometimes so continued until convalescence, which, without the aid of antiperiodics, was likely to be long delayed.

All patients did not fare even so well as this, for many of them died within two or three days, probably of local congestion, at the period corresponding to the chill stage in ordinary intermittents; in this feature of the cases resembling pernicious fever, or the "sinking chills," of a later period.

The universality of the sickness was such, over on the Darby Plains, where my people then lived, that there were not well ones enough to bury the dead, much less to care for the sick. Those who were able to work patrolled the settlements, going from house to house asking for the dead who needed burial; and the bodies of some remained in the cabins, where others were sick, until decomposition was far advanced.

Among the physicians of that early day, whose names are familiar to me, were Dr. Wetmore, of near Worthington; Dr. George Converse, of Lower Big Darby (the father of the present Congressman from this District); Dr. Hathaway, of Woodstock; Drs. Mosgrove and Carter, of Urbana; Dr. Lorenzo Beach, my uncle, of Madison county; and Dr. James Comstock, of Madison county—a brother, I think; of the late Buckley Comstock, of this city. The virtues of indigenous plants were probably then but little known, and the most of such knowledge that was then current was borrowed from the Aborigines. The chief reliance among the physicians was probably calomel and jalap, sulphate of magnesia, and phlebotomy. Eupatorium perfoliatum was used extensively in domestic practice, as an emetic and cholagogue.

Allusion is often made to the "cold plague," as one of the causes of death among the early settlers. I have always been at a loss to know what this trouble could have been. It caused many deaths after the return of the soldiers from the war of 1812. I am inclined to the belief that it was cerebro-spinal meningitis. "Sinking chills" were early recognized and classified; and so was milk-sickness—a scourge that delayed the settlement of all the counties northwest of Chillicothe—and it could hardly have been a modified form of either of these, for neither of them resembles anything else in any of their essential particulars.

My own earliest recollection of a common autumnal fever, is of what was known as "bilious fever." It was a *nine day fever*, without intermisions or remissions. The prodromic stage was usually for two or three days, although it was occasionally ushered in more suddenly by the exhaustion of over-work, or by exposure to rain-storms and neglect to change to dry clothing. After the prodromic stage came the fever and chilly stage, with headache, ostalgia, thirst, nervous restiveness, as in ague, and other symptoms as in ague excepting a longer continuance of all the stages. The fever, which would run very high, continued "without variableness or shadow of turning," for nine consecutive days, and would then terminate abruptly, often with critical discharges. Your patient would be left bathed and almost floating in perspiration, emaciated, pale, and alarmingly prostrated. The only danger seemed to be *when the crisis came*, on the ninth day, at which time, notwithstanding all

your care and forewarning, your patient would sometimes, and not very infrequently, die.

Along the borders of the sluggish streams in the Darby Plains, deaths among the adults, in the autumnal months, were more frequent from this cause than from any other endemic cause. It was the prevailing form of severe autumnal fever in my own practice along the banks of Big Darby as late as the seasons of 1853 and 1854, since which time I have not met with a single case anywhere. Convalescence was usually slow; but my present recollection is that relapses, even of a milder type, were not a very common thing.

In 1855, on the Darby Plains, the prevailing type was remittent, with relapses of intermittent every seventh day, dating from the day of the last chill.

In 1877, a remittent prevailed that was characterized by severe and obstinate epistaxis. I think some of my own patients would have died from this cause, if I had not succeeded in arresting it by injection of the nares with solution of nitrate of silver.

The first two cases of "typho-malarial" I treated, occurred in the autumn of 1856, in Madison county. They both recovered. When I joined the army in April, 1862, at Shiloh, a prevailing disease was what was reported in the monthly reports as Febris Typhoides. The names for fevers on our printed blanks recognized febris typhoides, common continued (if any body knows what that means), febris remittent, etc. It was not until the month of May, or June, that the blanks reached us containing the name "typho-malarial." It was the prevailing type of continued fever, I think, with but few cases of febris typhoides. Out of Lew Wallace's Division, when the main army moved on Corinth, about twenty-two hundred were left in hospital camp at the old Shiloh Spring—one-fifth of all of whom, I should think, were typho-malarial cases. I was the only assistant there, and Dr. Tom. B. Hood, Assistant Surgeon of the 76th Ohio, now Medical Referee of the Pension Department, Washington, D. C., was in charge. This may seem surprising now, but it must be remembered that doctors, like other people, sometimes get sick; and as an example of the general condition, I will mention that before the battle, the 20th Ohio, Col. M. F. Force, bore on its

rolls over nine hundred men, and yet, on one morning in May, it mustered *just seventeen men fit for duty.*

In the treatment of the typho-malarial there, I formed the opinion that the disease is self-limited, like typhoid fever, running from eighteen to twenty-two days, but usually shorter than a genuine typhoid.

Since the war I have usually had more or less cases in the autumnal months; and following dry summers there is a ridge of land running down the eastern border of Clarke county, where it is a prevailing type of disease.

In the autumn of 1883, I met with a class of cases that were new to me. I have treated about twenty cases, in all. I think they are self-limited, and run, on an average, about twenty-one days. The approach is gradual, and not very unlike typhoid fever, in some respects. There is *malaise*, a tired-out feeling, and some headache. The disease is not ushered in with a chill, but the headache and fever increase until the fever reaches from 102° to 104°, and occasionally to 106°. Symptoms of gastro-enteric irritation are common, but not invariable. In four cases out of five (in one family), numbness and formication of the third and fourth fingers of one hand were present as a prominent symptom. Pains, like neuralgia, were present in some of the cases, which reached, usually only on one side, from the region of the clavicle to the os calcis; and children thus affected were importunate to be rubbed by the nurse, if with nothing more than the dry hand. In two of the cases bluish spots, or wheals, like hives, spread over the hands, accompanied with *burning* that was simply intense, but without itching. In these cases extensive blisters appeared under the skin of the palmar surface of the hands and fingers. In all the cases there were pains and soreness in the extremities, and the feet and legs had to be handled with great deliberation and care, to avoid a great aggravation of the distress. When the pains were referable to the joints, they felt as though they had been twisted, and long confined in that distorted position. In one case there was edema of the extremities, with acute soreness of the fleshy tisues. Petechiæ were numerous over the chest and bowels. The approach to convalescence was gradual. In one case there was marked subsultus, and sordes on the gums, teeth and lips, and these symptoms were slight in two other

cases. In one case there was retention from *atony* of the bladder—in a girl ten years of age—and I had her to catheterize for fifteen days. There was dribbling when the viscus was distended, but seemingly no voluntary power of expulsion. The secretion seemed to be normal, if not excessive, and at each daily visit I found the round, hard, distended bladder reaching to the umbilicus. At these times the nurse could give partial relief by raising the shoulders with an extra pillow, to relieve the tension of the abdominal muscles.

Dr. A. J. Strain, of London, reported one case of a typical character, in which there appeared, about the twelfth day, an itching eruption, like urticaria; and Dr. Smith, of Viena Cross Roads, Clarke county, reported another in which about the tenth day the bluish purple spots, with the *burning* sensation, appeared on the hands.

Neither of the physicians last named were able to classify their cases, and I freely admit that I have no idea what I was treating in any of my twenty cases. Among the many physicians whom I have consulted, but one ventured an opinion as to the trouble, and he—a prominent Cleveland, Ohio, man—attributed the cause in his own cases, that he thought were of a similar character, to sewer gas poison; but as there is not a sewer within twenty miles of any of my cases, all being in the country, I could not coincide with him fully as to the probable cause. But as profuse perspiration marked the approach of convalescence, especially during sleep, I have supposed it may belong to some of the types that we associate with malarial causes.

MILK-SICKNESS.

BY WM. MORROW BEACH, M. D., LONDON.

It has never been my fortune to have read the voluminous work of Dr. Samuel Drake on the subject of the Diseases of the Mississippi Valley; but my understanding is that while he recognized such a disease as "milk-sickness" (so-called), he held to the opinion that it was only a malarial fever modified by local congestions. The general literature on this subject has been mostly confined to medical journals of the regions where the disease seems to be localized. The light, which we of the West have shed, seems not to have penetrated the cities of the Eastern seaboard, where our medical text-books have generally been prepared; although I have recently been informed that Dr. Wood alludes to the subject in his work on Theory and Practice.

Some years ago I read a paper in a Cincinnati medical journal from Dr. G. Volney Dorsey, of Piqua, Ohio; and still later I read another, and a very able one, in some journal, the name of which I can not now recall, from the pen of Dr. Wm. H. Philips, of Kenton, Ohio. These are all the articles, I think, I ever saw in print upon the subject, until a few days ago my former class-mate and friend, Dr. Anson Hurd, of Findlay, Ohio, sent me Nos. 24 and 25, of the (Cincinnati) *Clinic*, of December, 1875, containing an able and voluminous report from him to the North-western Ohio Medical Association, in the previous month. My present recollection of the tone of Dr. Dorsey's paper is, that he held about the opinion of Dr. Drake—that milk-sickness is simply a modified form of congestive malarial fever. Dr. Hurd, after giving numerous references

to the opinions of others, entertains the same views. The credit is due Dr. Wm. H. Philips, of Kenton, Ohio, of having been the first, so far as I know, to have examined the blood under the microscope and to have discovered the bacilli, that he deems peculiar to the disease. In presenting this paper, I do so simply to give my own views, quite independently of the views that others may maintain, and for the purpose of drawing out the views and experiences of others, as I think the subject has not heretofore been brought before this Society.

I, myself, believe it to be a disease *sui generis*. My people were pioneers of Madison county, Ohio, and some of our family, and many of our friends, fell victims to the disease.

Its field was once Western Pennsylvania, and as the tide of emigration moved westward it found its victims in the north-west half of Ohio, over Kentucky, Tennessee, Indiana, around the groves of Illinois, and in portions of Michigan. It has, probably, never been known west of the Mississippi river, nor north of the chain of the great lakes, nor in any of the "Islands of the Sea," nor in any of the countries of the Old World.

The disease in the lower animals is called "trembles," from the agitated or *tremulous* condition of the muscles in animals suffering from the disease; and in the human species it is called "milk-sickness," from the fact that the pioneers attributed its cause to the use of the milk of domestic animals suffering from trembles, as at that time their experience had not led to the knowledge of the poisonous properties of the *flesh* of diseased animals; as the scarcity of domestic animals, subject to the disease, rendered the consumption of the flesh of such animals a luxury, probably quite unknown at that time.

It is a disease, generally, of late summer or early autumn; but it has been met with, occasionally, in midwinter.

In the lower animals the disease first affects the *unweaned offspring*. This is to be accounted for, in part, by the double causes for the contraction of the disease—the same cause as the other animals, and the added cause of the poisoned milk it nurses: although, and *this is a point of great force*, the offspring *suffer first*, even when they are kept in closed pens near the house, where they have *no*

water whatsoever, and *ingest no substance excepting the mother's milk!*

"Trembles" next affects the other animals that are *not giving* milk, and the milk giving animals *last of all!* The greater exemption of the milk-giving animals may be accounted for by the *elimination of a part of the poison*, at least, through the *emunctories of the lacteal glands*. These rules hold good with cattle, sheep, horses and goats.

Viewed from my stand-point the poison that produces the disease is *specific*. *It will produce that one disease, and no other*. The milk, the cheese, or the butter, from an animal with the trembles, or from an animal in the prodromic stage of trembles, or the flesh of such an animal, if eaten, is likely to, and probably will, produce the *specific* disease in the animal subject to the action of the poison, or in the human subject.

Nor are some wild animals any more exempt than mankind or domestic animals. The wolf, the fox, the wild-cat, the wild hog, and the turkey-buzzard, that ate the carcass of the wild deer that had died of the trembles, in the pioneer days, were as liable to contract the *specific* disease as the dog or cat, or hog, or fox, that ate of the carcass of any domestic animal, dead of the specific disease, of a later day.

CAUSES.

There are five separate and distinct classes of advocates as to the causes of the disease:

1st. The advocates of ingesta of vegetation.

2d. Those who think it is from the deleterious water supply.

3d. The marsh miasmatic theorists.

4th. Those who attribute it to some *mineral* that settles on and adheres to vegetation, or to the presence of some *gas* that is breathed.

5th. That its cause is *bacterial;* that *spores*, *bacteria*, or some microscopical *fungus* or *disease germ* is taken into the system by *either* the ingesta of vegetation, deleterious water supply, or taken in with the breath from the poisoned atmosphere.

But in theorizing as to the probable causes there are a few cardinal points to be taken into consideration:

1st. That as a rule, which seldom varies, it is a disease of dry seasons.

2d. In very dry seasons, in places where the disease cause is known to exist, it is unsafe to allow the domestic stock to remain out *during the night.*

3d. In inclosed fields, where the flora is supposed to be identical, the disease may be contracted in one field and not in another.

4th. It is a disease unknown on the open prairies of the Western States, where the animals are not allowed to remain in the *timber over night.*

5th. In an experience of seventy years, in Madison, Clarke, Champaign and Union counties, Ohio, among my people there, and every pioneer or old resident, with whom I have ever conversed, during the experience of my own life-time, *no case of trembles* has ever been known to occur, in summer or autumn, when domestic animals have been continuously corralled in an open lot that has become "tame," from *before night-fall* until the *dews had become dispersed* in the morning following; and that the only danger arises from allowing stock to remain out in the woods over night. All careful pioneers, and all careful stock owners, for many years after the pioneer days, had their corral near the house for their milk cows. The exceptional or unusual cases that occur in winter are more difficult to account for. The old citizens account for the winter cases of trembles from the use of grasses preserved as hay, collected along the wet glades and partially shaded openings that had never become "tame," by continuous pasturage or cultivation.

Trembles and milk sickness have generally been very hard to locate by scientific inquirers, unacquainted in any particular settlement where it prevailed. They have generally been assured, by the "pious" informant, that it prevailed "over in the other settlement," and the nearest the stranger generally got to it was that it was "on the next farm."

But, in point of fact, its home is in densely wooded, unimproved tracts of country, and does not seem to be at all influenced by the quality of soil, or topography of country. If it has prevailed extensively in Central and North-western Ohio, along the borders of sluggish streams, or in the Wabash and White River valleys of Indiana, or around the

groves of Illinois, it has also prevailed, it is claimed, among the highlands of Kentucky and Tennessee.

Near the head-waters of Deer Creek, in Madison county, there is a small farm owned by John H. Markle. On this farm is one inclosed field of woodland, of about thirty acres, rolling and dry, and with no springs or rivulets, nor any other source of water supply. This small piece of woodland is one of the homes of trembles, and has never been used in late summer or early autumn, since the settlement of the farm in the pioneer days, in a dry season, without more or less loss of stock by trembles. The timber is saved up for the farm supply, and is always used in winter as a shelter for hogs, or other small stock, and always without loss by trembles.

On another farm, near there, belonging to the heirs of the late John Wilson, is a boggy piece of land of about one acre, in a wooded pasture, that has been inclosed by a strong and high fence for many years. The owner, in his life-time, fifteen years ago, told me that before fencing the bog, many years before, he was losing cattle with trembles almost every year, and that since fencing it he had lost none. The bog does not afford a water supply, and the immunity since fencing may be simply accidental.

Another piece of woodland, two miles from there, near Cartsdafner's Mill, belonging to Mrs. Nancy Wilson, and containing about one hundred acres, is another home of the trembles. Stock enough have died in that woods, of the trembles, to pay for the land twice over. It is inclosed, and is saved up for timber supply. It affords some pasture from the openings where timber has been felled; and it has been the habit, for years, for renters to use it for pasture during the forepart of the season, and remove the stock whenever the hot and dry weather of summer came on. The losses have resulted from waiting, without removing the stock until trembles among it had begun to develop. A few years ago she had no use for it, at all, as she is a wealthy widow and owns several other farms. The season before a renter, by the name of Everett, had occupied it for his horses—every one of which contracted trembles before the dog-days were ended. The season that she did not occupy it herself, proved to be a very dry season—the very kind for producing trembles. Some of the villagers of Somerford, only a mile away, were the owners of milk cows,

probably twenty or more, in all. These village cows, accustomed to gather a precarious living on the highways, found gaps in the fences, by some means, and walked in and took possession of this woods lot, and kept possession the whole summer through. But before night all were regularly taken to the village to be milked, and kept there until the following morning. I was of the opinion that more or less of these cows would be allowed to "stay out" some night, and that before the season closed I should have half of the village on my hands with milk sickness, and I gave the villagers frequent and earnest warnings; but no case of milk-sickness or trembles occurred from the use of that field that season. But, from my experience with trembles, I think a *single night* of exposure within the woods lot would have endangered the whole herd, and all who partook of the milk or of the milk product.

I localize these several homes of the trembles, and there are others near, because the owners, I think, would make no objections, and I know that none of the wood lots are, or are likely soon to be, for sale. But, to make them perfectly safe, all that is necessary is to denude them of timber, and let the sunlight in on the exposed surface of the ground.

PREDISPOSING CAUSES.

Perhaps the most common predisposing cause in domestic animals is *fatigue*. Among the stockmen of my county, in an early day, one of the ordinary stipulations in the purchase of cattle, sheep or horses, was the privilege of chasing them, at a good speed, for ten or fifteen minutes. If they were found active and in good spirits the following morning, they were supposed to be clear of trembles, and the bargain could be concluded. Owing to this reason, if no other, there was no danger in the use of the flesh of domestic animals after reaching an Eastern market. No animal, bordering on the disease, would be at all likely to "stand up" under the fatigue of transportation, for any considerable distance; and they generally "gave down" before reaching the nearest market, and sometimes "showed signs" before they had gotten off the farm. Before the days of railroads we had two classes of stockmen. One of the classes, of which the Wilsons, of Madison county, were representatives, gathered, or "bunched

up," their cattle from Indiana, or from the small farmers nearer home, when they were from two to three years old. They were kept and grazed by them until fat enough for the other class of stockmen—the "drovers"—of whom the Renicks, of Pickaway county, were the originators and pioneers. This latter class "bunched them up' in droves of from one hundred to five hundred head, and drove them, by easy stages of from ten to twelve miles a day, across the country and over the mountains to "Old Lancaster," or Baltimore, or the Philadelphia markets.

The second most common predisposing cause among domestic animals was probably that of giving them too much salt at one time. But whether this was owing to the irritating action of the salt on the stomach, or to the secondary result of causing the animal to take an injurious amount of water to allay thirst, is not a question easy of solution.

PERIOD OF INCUBATION.

Respecting this point of the subject, I have not sufficient data to formulate an opinion.

My first impression concerning milk-sickness occurred in the case of Orson Smith Converse, a farmer, aged 30, who died in Canaan township, Madison county, Ohio, October 14th, 1838, when I was seven years old. He was my brother-in-law. I remember his persistent efforts to vomit, and that they gave him quicksilver to overcome constipation. I remember his outward symptoms well, and his look of resignation, or *indifference as to results*. I remember that his calves died of trembles whilst he was sick, and that their mothers did not die.

About forty years ago, or in about 1844, I saw my second case. It was that of a servant girl in the family of Dr. Abel W. Field, of Amity, Madison county, Ohio. Her father's family, on the opposite side of the road, and near the residence of Jonathan Alder, the liberated Indian captive, in Jefferson township, Madison county, Ohio, came down with milk-sickness. On Sunday, during their sickness, she went home to see them. She stayed to dinner, and ate some butter on her bread, but no cheese, milk, or meats of any kind, and returned to the village in the evening of that day. On Tuesday, two days later, she came down with milk sickness, but had a slow recovery, while all the balance of the family died of the disease.

In the autumn of 1853 I was called in consultation with Dr. Jeremiah Converse, of Darby township, Madison county, Ohio, to see the cases in the family of Silas Converse, in the same township, and near the banks of Little Darby. My present recollection is that I found the child dead, that the father died the next day, and that the mother made a slow recovery. Those were the first cases I had ever seen professionally, and I recommended *whisky and quinine*—probably for the first time in all the history of that settlement—but I cannot say that my recommendations were carried out. My present recollection is that his unweaned calves then had the trembles.

In the autumn of 1855, I was called to see the family of John Bradley, in Monroe township, Madison county, Ohio. Trembles developed in the unweaned calves within one or two days thereafter. A Miss Wood, a niece living in the family, had advanced to the stage of vomiting, and died two days later. Mrs. Bradley, who was *enciente*, and two of the children, were simply in the prodromic stage; all partook freely of alcoholic stimulants, and none of them died, and only the mother advanced to the stage of vomiting.

In the autumn of 1856 I attended a Mr. Green, aged about twenty-five years, on the National road, in Jefferson township, on land now owned by Mrs. Nancy Wilson. He died about the tenth day.

In 1865, in winter, I was called in consultation with Dr. James B. Sprague, to see Irenius Kimball, on the line of the National road, in Pleasant township, Clarke county, O. My present recollection is that his unweaned calves then had trembles.

In the month of August, 1867, I was called to see Michael Dwyer, of Pleasant township, Clarke county, Ohio, who had that day come up out of a well he was digging, and went straightway to bed with milk-sickness. They declared that their cows and calves were healthy, but acknowledged that they had "stayed out" two successive nights, about a week before, in the Bailey woods—a heavily timbered body of wild and unenclosed land of several hundred acres, belonging to some minor heirs in Virginia. But I went into the barn-lot and commenced chasing the calves, and in less than five minutes one of them developed an unmistakable case of trembles. The products of the dairy were used no more by any member of the family, but

four other cases of milk-sickness developed in the family within a week, including the mother, who was *enceinte*; but all made a slow recovery, excepting the father, who died on the tenth day.

In August, 1869, I was called to see Samuel Markle, a deaf and dumb man, aged about thirty-five, on the line of the National road, on "Markle Hill," near the line between Madison and Clarke counties. I failed to get a clear history of his case, as his wife was not a satisfactory interpreter, and I hurriedly and somewhat carelessly prescribed quinine, and ordered it given in spirits to reconcile him to the taste of the drug. He made signs to me that his stomach was disturbed, and that he felt limp and prostrated. On the following day he seemed much the same, but was still sitting up. I repeated the prescription of the previous day, but on the third day I found his wife also sick. For the first time I suspected milk-sickness, but from her I got a more satisfactory history of her case. I ascertained, after pinning them down with questions—for people generally are reluctant to acknowledge that trembles or milk-sickness belong to their settlement—that their cow had "stayed out" one night, about a week before they got sick, and she had probably stayed over night in the Bailey woods, as she generally "ranged" in that direction when she got out on the road. On the fourth daily visit I found the wife with a well-marked case of milk-sickness, and the unweaned calf dead of the trembles. The husband made a good recovery, as the quinine and whisky had arrested it in its prodromic stage; the boy, the only child, escaped entirely; but the mother died on the twelfth day.

In the winter of 1874–5, I was called at night, in consultation with Dr. James B. Sprague, to see the family of Geo. Reynard, in the village of Brighton, Clarke county, Ohio. I found the father, a cooper by trade, and aged about forty-five, in *articulo mortis*, and the mother approaching that condition, as she died twelve hours later. The family of children, for some unexplained reason, all escaped.

About a week later the family of John McManaway, of the same village, came down with the disease, but all recovered under the use of whisky and quinine.

These cases, it was thought, came from eating of a beef that had been retailed through the village about one week previously.

SYMPTOMATOLOGY.

In the lower animals the disease is called "trembles," from the trembling condition of the muscles, when the disease becomes fully established. This trembling is quite like that peculiar motion of the flesh of a beef immediately after being skinned by the butcher, excepting that it is much more pronounced. But before the animal begins to tremble, if undisturbed, it seems indisposed to exercise. It stands apart from the herd, drooping, languid, with a look of extreme fatigue, and presently abstains from food. The second stage is that of trembling, aggravated by being pushed around—for you can scarcely drive them, with thirst and obstinate constipation. At length the animal lies down, and only in rare instances ever rises again. The decubitus becomes at full length, and the animal becomes a stranger to fear, affection, or anxiety. The respirations become less and less frequent, the extremities and surface cool, the nose dry, and the eye at length fixed, glazed, and the winking ceases altogether. Recoveries are not frequent, and death ensues from the eighth to the tenth day. At any stage the animal is likely to die speedily if forced to take violent exercise, as in running or driving.

In milk-sickness, the patient is apathetic, weary, weak, indisposed to any exercise, with loss of appetite or loathing of food, and in some cases has slight nausea. This condition may run on for several days, with but little variation, excepting all the symptoms may become more and more pronounced, until at length the patient takes to his bed. There may be no prodromic stage in cases suddenly developed by over-exercise. There are no chills, no rigors, or other symptoms that usually characterize the ushering in of a violent or dangerous malarial fever. There is great thirst, the tongue large, flabby, tremulous, moist, and heavily loaded with a dirty white coating. The nose is cold, the ears cold, and the sensation of coolness overspreads the body. The skin is dry and sensible perspiration suspended. The abdomen is flat, flabby, and comparatively empty. Peristaltic motion seems absolutely suspended, and the bowels obstinately constipated. The breath becomes offensive, and some people claim that they can diagnose a case of milk-sickness blindfolded, by the peculiar odor of the patient's breath, alone. My own

observations do not confirm this, although it may be so. The clear and limpid urine may decline in quantity to eight or ten ounces a day; the pulse weak and easily compressible, with labored action of the heart and a pulsating aorta.

The temperature usually seems below normal, but I have not seen a case since I commenced using a thermometer, and can only rely on others as to the facts. In Dr. Hurd's paper, he quotes Drs. McIlheny and Ballard as authority that it sometimes reaches 99° or 100°. There is a marked degree of hebetude and indifference, and even in cases where no hope of recovery is entertained, the patient rarely manifests any solicitude for his own future, or for the future of his family or friends. There is intolerance of covering for the body, and the patient rebels against any effort at keeping the extremities under the lightest covering. In the case of Silas Converse (case 2, alluded to), he gave the nurses no rest only as they kept his hands immersed in cold water. They would occasionally desist, and every time they recommenced the nausea and retching would be increased.

As the disease advances, the exhaustion becomes so extreme that the nausea is only indicated by a feeble and peculiar retching effort, that to be heard once is to be remembered always.

In the later stages, if any fluid be ejected from the stomach, it resembles the blueing water of the laundry-woman; and the feeble effort at retching continues to the close of life, or until coma or oblivion shut it off.

The hebetude assumes a semi-comatose condition; the respirations much like those of a hibernating animal, sometimes scarcely perceptible, and sometimes quite profound. The process of winking at length is suspended, and the conjunctiva and cornea become glazed. The hebetude and semi-coma increase to coma. There is stasis of the capillaries, and the patient at length sinks into the final rest, generally without a struggle and almost without a sign; or, to quote the language of the poet, Hood:

> "We watched her breathing through the night,
> Her breathing soft and low;
> As o'er her breast the wave of life
> Kept heaving to and fro.
> So quietly she seemed to sleep,
> So quietly and low,
> Our very hopes belied our fears,

Our fears our hopes belied;
We thought her dying when she slept,
And sleeping when she died."

In all cases I have ever seen, or ever treated, there was persistent constipation; and I never had but one case where the bowels moved before the commencing of convalescence, and she (Mrs. Markle) died two days later. If I were treating cases where constipation did not exist, I should gravely doubt the diagnosis as milk sickness.

I have never met with but one case in which there seemed to be anything like what is usually called a *crisis*. This was in the case of a girl about twelve years old, in the Dwyer family before aluded to. On about the tenth day I abandoned all hope of her recovery. For two days her coma had been profound. Altogether unexpectedly to me she had a dejection, during the continuance of her coma, after the process of winking had been suspended for forty-eight hours, and almost all signs of vitality had become extinct, of about one quart, of a deep green color, and of the consistency of soft soap. Twelve hours later the respirations had increased at least five to the minute, and she had been noticed to open and shut her eyelids four or five times. She gradually recovered.

PATHOLOGY.

Of the pathology, as revealed by *post mortem*, I can not speak, as I never witnessed a *post mortem* on the human subject. But I have never seen a case in which there was pain or tenderness over the bowels or epigastrium, on pressure; nor ever heard a patient complain of *any* pain, anywhere. I have treated acute gastritis; but the complaints, by any tests I could bring to bear, are in no way similar. In the case of Mrs. Markle, before alluded to, the dejecta consisted of hardened, dry, dark, tenacious lumps, about the size of a pickled olive, without an especially offensive odor. These lumps were covered with a tenacious, whitish mucus, and were not accompanied by any fluid discharge whatever. I never knew a patient to vomit any blood, any stercoraceous matter, and never anything that looked like the regurgitated bile of malarial fevers. Until I am convinced, by personal examination of the cadaver, that special and incontrovertible signs of recent inflammation have existed in the stomach or bowels

of a milk-sick patient, I shall feel doubtful of its existence as a pathological necessity. In the solitary one case of a *post mortem* on a calf, I found no evidences of recent inflammation in either the stomach or bowels, and only an appearance of congestion of all the internal viscera.

TREATMENT.

Pulverized charcoal was a remedy among the Aborigines for allaying nausea. So I once heard Jonathan Alder (a captive among the Indians, from the age of two years until he grew to manhood, and had a squaw for a wife,) say when I was a boy. Some of the early physicians gave calomel and jalap, or other drastic cathartics. Nearly all of them were agreed that there was *urgency* for an evacuation of the bowels. It is said that Dr. Jennet Stutson, of Madison county, occasionally succeeded in accomplishing this by placing his patients on a floor and suddenly, and without warning, dashing a full bucket of cold water over them.

A lovely young bride, of three months, over near Milford Center, Union county, was visited by a Thompsonian, in the early days of that practice. He thought a lobelia emetic might do her some good. She was not much sick; and he probably thought it might "change her symptoms," and it probably did, as she died in collapse within an hour. Quicksilver, in doses of half an ounce, was occasionally tried, as in mechanical obstruction of the bowels. Last year a Logan county physician told me that he had taken cases that were well advanced, and had succeeded in allaying nausea by half teaspoonful doses of soluble citrate of magnesia, repeated every fifteen minutes, and persisted in. I have used it myself, and also carbonic acid water and lime water. I have thought I derived some benefit from them. But when I settled down, more persistently, to the whisky and quinine plan, I am quite sure I succeeded better.

Whisky is given in snake-bite, and in poisoning from the bites and stings of all venomous reptiles and insects. These poisons are *depressants* and act by paralyzing the heart. It is given on the principle of a *heart stimulant.* I once had a soldier whose heart was nearly paralyzed from extensive stinging of bees, whilst robbing the hive. I had no whisky, and found full doses of quinine to answer *equally as promptly* and as *satisfactorily.* May not the poison of milk-

sickness be similar? and may not both remedies act as *neutralizers* as well as heart-stimulants?

In the use of alcoholic stimulants I should not have any special choice as to the mode—whether *per os*, *per anum*, or by hypodermic injections.

In "trembles" the favorite domestic remedy was green corn, freshly brought from the field. The theory was that if the animal could eat enough of it, it was likely to *cure;* but the facts probably were that if the animal were not so sick as to have lost all inclination for food, recovery would be likely to follow without the green corn, at all. As an antidote it was of questionable benefit; although full feeds of it are apt to act as cathartics.

My own advice is the free use of alcoholic stimulants; and for years this has been the chief reliance in the country about Lafayette, Indiana, and probably elsewhere in the States of Indiana and Illinois.

OBSERVATIONS ON THE USE

OF

BOROGLYCERIDE

In Eye and Ear Diseases.

D. W. GREENE, M. D., DAYTON.

In March, 1882, Prof. Barff read a paper before "The Society of the Arts," London, England, on the preservative properties of Boroglyceride, a combination of boracic acid and glycerine, over animal matter and animal products. This new compound, which results from the chemical combination of the above well-known ingredients, he found to possess preservative or antiseptic properties hitherto unknown and unequaled. Among many examples, he submitted the fact "that a quart of cream, to which one ounce of boroglyceride had been added, had been sent from London to Zanzibar, a distance of about 3,500 miles, and through the tropics, yet it reached its destination sweet and pure." Its antiseptic properties will doubtless soon be further utilized in the preservation of meats and other articles of food in transit from one country to another. Repeated experiments, including its internal administration, have demonstrated it to be free from deleterious properties. According to Prof. Barff, the proportion of boracic

acid and glycerine in the compound is that of their atomic weights, viz:

Boracic Acid.		Glycerine.		Boroglyceride.		Water.
$B\,O_3H_3$	$+$	$C_3H_3 3(O\,H)$	$=$	$B\,O_3C_3H_3$	$+$	$3(H_2O)$
62 parts.		92 parts.		100 parts.		54 parts.

The boracic acid, 62 parts, and the glycerine, 92 parts, are gently heated by a water bath to about 150° C. (302°F.) For this degree of temperature the water bath is just barely sufficient. Care should be taken to add the boracic acid very slowly. It is completed when it ceases to lose weight. Made after this manner fully a day is required to make even the smallest quantity, and then it is not so bright and clear as when the facilities for a higher and more uniform temperature are present. Of the resulting compound one hundred parts are Boroglyceride, fifty-four parts having been driven off as water.* On cooling, the resulting compound is a bright amber colored vitreous mass, of the consistency of glacial phosphoric acid. It is very hygroscopic, but its value is not affected by the water it absorbs. It is quite soluble in hot water, sparingly so in cold water, but is freely soluble in glycerine, with which it can be combined to form any per cent. solution desirable. It has an acrid, pungent but not unpleasant taste, and is decidedly astringent, as shown by the puckering of the mouth after its internal use, and by the pearly whiteness of the conjunctiva scleræ, which follows its application to the eye.

From the foregoing remarks it will be seen that its action is twofold, germicidal or antiseptic, and astringent. The wide prevalence of the conditions to which these properties render it applicable is practically without limits. In surgical, gynecological, ophthalmological and otological practice its field of usefulness is coextensive with the conditions of hyperemia and purulency. Its therapeutic uses have been deduced from its power of preventing the development of putrefactive changes, and its astringent action as shown when applied to the conjunctiva, and are based on the supposition, as suggested by Mr. Balmano Squire,† that an agent competent to prevent the development of the germs of putrefaction (that is an antiseptic) would be indicated as a remedy in the treatment of those diseases, which

*Notes on Boroglyceride, W. S. Merrill & Co.
†British Medical Journal, 1882.

in the light of recent scientific research we have every reason to believe are but the manifestations of germ infection. In other words, that the drug or combination of drugs, which would prevent the development of septic germs, would act germicidally, when brought in contact with the products of germ infection. Reference is here made to its topical uses. At this point it seems proper to inquire how and in what manner Boroglyceride asserts its anti-putrefaction power. Boracic acid, as Sternberg * has shown, has the power of preventing, to a large degree, the multiplication of bacterium *termo*, the essential and ever present bacterial organism in all putrefactive processes, and glycerine is a preservative agent of no mean pretensions.

The following, from the United States Dispensatory,† shows that it has positive antiseptic properties:

"Its preservative influence, which often protects against oxidation, and by a destructive agency upon all of the lowest forms of vegetable and animal life, prevents the various fermentative processes, so destructive to organic bodies." Bartholow‡ says, "The antiseptic property of glycerine is decided. Vaccine lymph may be preserved unchanged almost indefinitely, when stored up in pure glycerine; and anatomical preparations and specimens of natural history are kept in preservative solutions, consisting chiefly of this substance."

Future experiments will determine just how Boroglyceride acts as a preservative agent. Its action may be that of boracic acid plus the action of glycerine; that action as we have seen is antiseptic, or it may possess properties of its own, not inherent in either of its component elements. This view of the matter is favored by the fact that the chemical composition, as given earlier, develops an astringent quality not possessed by either component element. All experimenters, so far as my knowledge goes, ascribe to it a germicidal property, which, I believe, has not yet been demonstrated, and indeed it is not absolutely necessary to explain its utility, for it matters very little whether it acts by preventing the multiplication of bacterial elements (an antiseptic) or has properties directly destructive to bacterial life (a germicide).

*American Journal Medical Sciences, 1883, p. 341.
†United States Dispensatory, page 710.
‡Bartholow's Materia Medica, page 510.

Dr. Faught, of Philadelphia, in the *Medical News*, May 26th, 1883, says, of its range of usefulness: "As a surgical dressing Boroglyceride holds an important position, serving to allay inflammation, check excessive discharge and sloughing. It is a decided antiseptic and acts as a deodorizer; added to poultices, fifty per cent. solution, it serves to keep them moist and sweet for a long time. Those who have charge of a surgical ward during the summer months will know how desirable these points are. As a vaginal application for leucorrhea and sub-inflammatory conditions of the cervix, I have used either the cotton suppository, or, what is much better, the oakum suppository of Emmet. * * * Such a suppository will remain in the vagina perfectly sweet and pure for twenty-four hours. * * * The results obtained by this method of treatment are surprising; in a large number of cases the discharge is stopped by one application." Dr. Faught further endorses it as a very successful remedy in the treatment of gonorrhea in the male.

So much for its use in surgery and gynecology, which I have only hinted at in order to show the range of its usefulness, reserving more extended remarks to its use in purulent diseases of the eye and ear, the subject proper of this paper.

During the past few months I have treated quite a number of eye cases with solutions of Boroglyceride. These were cases of granular conjunctivitis, ophthalmia neonatorum, ulceration of the cornea, catarrhal conjunctivitis, etc. I shall not consume your time in a narration of the histories of these cases, but will select one from each class, which will fairly represent the class to which it belongs.

T. H., a flabby, scrofulous lad of ten years, had been under my care for the treatment of granular conjunctivitis and pannus, of several years duration. He had gone the rounds, first to one physician, then to another, not remaining long enough with any one to follow out a systematic course of treatment. When he came under my care, I began the use of a fifty per cent. solution of Boroglyceride in glycerine, once a day, in the following manner: With a cotton-wrapped probe all secretions were mopped up from the surface of the everted lids and from the many *sulci* between the tracomatous nodules, and the remedy was applied in a similar manner. Special care was taken to make

the application of the remedy thorough and complete. It was thought especially desirable that the remedy should fill the *sulci* and thus act on a larger surface of each individual nodule. For use between these applications the family was provided with a twenty-five per cent. solution in glycerine, with instructions to drop a few drops into the conjunctival sac of each eye every third hour. This plan of treatment was faithfully followed for two weeks. At the end of that time the notes of the case show the following conditions present: Mucopurulent discharge almost entirely arrested; conjunctiva, pale; each individual granulation stands out more prominently than ever, the hyperemia having gone; each *sulcus* looks deeper and broader, which is sufficient to explain the apparent increase in size of the granulation nodules. At this stage the conjunctiva became so dry, and in all the cases so treated the feeling as if a grain of sand were beneath the upper lid became so unbearable, that the remedy was stopped, and recourse was had to ten grain solution of nitrate of silver. This served to relieve the uncomfortable feeling just described, and as the conjunctivitis was much improved, recourse was not again had to the remedy, it having, as I thought, reached the limits of its utility.

In this condition I have treated three other typical cases of this kind, with a result, in each, similar to that just narrated, which has been reported in full because it demonstrates, and the others confirm the fact, that Boroglyceride is a remedy of limited utility in the tracomatous state *per se*. But used for the relief of the accompanying conjunctivitis, it is a very excellent remedy, and in connection with copper, silver, etc., has a wide range of usefulness.

Opportunities have not been presented of giving the remedy such an extended trial in ophthalmia neonatorum as I could wish for, and which would form a basis from which conclusions could be drawn, and the number of reported cases so treated is so small that even they afford little assistance. But as the prime indications for its use (as all are agreed,) *hyperemia* and *purulency* are present to a degree not equaled in any other external eye disease, its use is indicated *a priori*.

Another condition, not uncommon in new born babies, is a red, sticky and granular condition of the eyelids. Such are often regarded as cases of ophthalmia neonatorum, but the most superficial examination will show that these lack

the essential element, purulency, the discharge being usually serous in character. In this class of cases the astringent action of Boroglyceride would seem to be indicated, but its range of usefulness is much less than in the class of cases first named.

For the purpose of preventing ophthalmia neonatorum by rendering the vagina of a pregnant or parturient woman aseptic, *the original method of Crede*, or simply as an eye wash after the birth of the child, as he now recommends, or for carrying out the method of Prof. Olshausen, of Halle, it would be difficult to conceive of a better combination than the drug under consideration.

The following case of ophthalmia neonatorum demonstrates the therapeutic value of the remedy so clearly, that it is reported in full, and will serve as the type of two other cases of about equal severity:

On the morning of September 1st, 1883, I was sent for to visit a new arrival at the home of J. F. From the mother I gathered the following facts: Baby was two weeks old, and was perfectly healthy. The mother had not been troubled with leucorrhea before confinement. At birth the baby's eyes were free from discharge, but on the morning of the fifth day the lids looked swollen, and a little puriform discharge escaped from the corners, and glued the lashes together. The discharge daily became more purulent and edema of lids increased until the time of my visit, when I saw purulent conjunctivitis in a newly born baby in its purity. The cornea could not be seen. I began the use of fifty per cent. solution of Boroglyceride in the following manner: The lids were separated with a lid retractor and several drops of a twenty-five per cent. solution instilled into conjunctival sack. The discharge became thinner for a day or two, then became thick and creamy again, when recourse was had to fifty per cent. solution and cold applications. Under this treatment the discharge became serous and on the fifth day had almost ceased. The edema of the lids promptly subsided, and the cornea were seen, bright and clear. The treatment was kept up until the seventh day, and then stopped, the discharge having ceased. This case, under the old astringent caustic plan, I feel certain, would have run a much more protracted course.

The rapidity with which Boroglyceride cured these cases

is in harmony with our idea of its germicidal astringent action.

In ulcers of the cornea, my experience with the drug is limited to two cases, and in each of them it is difficult to say just how much it had to do in effecting a cure, as it was used in connection with eserine, the bandage and hot water. But theoretically it is certainly indicated.

In catarrhal conjunctivitis the use of a fifty per cent. solution is very effective. It promptly lessens the discharge, relieves the hyperemia, and the feeling as if a grain of sand were beneath the upper lid. Its action is comparatively painless—an important item in the case of a child. This statement requires some qualification, however. There are a certain proportion of cases in which its application causes some pain. It cannot be predicated of a certain case that the remedy will or will not cause pain. It seems reasonable to suppose, however, that the more purulent the discharge, the less will be the pain following its use, for reasons so obvious that I need not refer to them.

In cases of dacryocystitis resulting from stricture of the nasal duct, or it may be from primary inflammation of the sac itself, Boroglyceride, seventy-five per cent. solution, will fulfil indications that no other single remedy can. After slitting up the canaliculus the remedy may be dropped into the inner canthus, and its entrance into the sac facilitated by the use of the probe, or with a pipette it may be instilled directly into the sac.

It has only happened to me to have the opportunity to use the remedy in one such case. The surgical treatment, however, is usually so satisfactory that it is difficult to estimate the therapeutic value of a remedy used as an adjuvant to slitting the canaliculus, incising the stricture, and passing probes.

Boroglyceride, 50 to 75 per cent. solution, achieves many a triumph in the cure of acute and chronic discharges from the middle ear. My experience with it, though comparatively limited, has been on the whole so satisfactory, that I now use it almost exclusively in these cases, where formerly boracic acid alone or in combination with iodoform, calendula, resorcin, &c., would have been depended on. It is entirely free from *the* great objection to boracic acid, which is its tendency to cake in the depths of the middle ear, unless the discharge be sufficient to moisten it.

Boroglyceride on the other hand is very hygroscopic, and its affinity for moisture so great that it abstracts water from the tissues of the ear. This property, together with its astringent quality, make it an agent of very great utility for the relief of a condition in which chronic hyperemia and inflammatory edema are prominent features.

The following will serve to show the manner of its application and its curative properties: With a cotton wrapped probe all discharge was removed from the meatus, and in cases of extensive perforation of the drum from the cavity of the middle ear. If the perforation was small, Politzer's method or the eustachian catheter served to force secretion from the tympanic orifice of the tube, and from the depths of the middle ear into external canal from which it could be readily removed. The patient having been instructed to incline the head to the side opposite the affected ear, ten to fifteen drops of the remedy were instilled into the meatus, and came in contact with the diseased surface; even in several cases where the perforation was small, by having the patient perform the act of swallowing, the remedy passed through into the cavity of tympanum, and thence through the eustachian tube in quantity sufficient to be tasted. If this experiment fail, it can be instilled directly into cavity of middle ear, through a small perforation, by means of a pipette.

The discharge soon loses its thick, creamy character, and becomes more serous. The odor quickly improves. Nothing, so far as my observation goes, will so quickly and effectually correct the fetor of the discharge as 50 to 75 per cent. solution of Boroglyceride. The congestion and inflammatory thickenings soon begin to subside, and a change for the better is soon observed. If polypi be found in the depths of middle ear when the discharge has been cleared away, if large and well organized, they should be removed with the snare. But if only the so-called polypoid condition be present, a very effective mode of treatment is that recommended by Dr. Brandeis,* with equal parts of Boroglyceride and absolute alcohol. Boroglyceride may be combined with vaseline in any per cent. solution, and for use in warm weather may be stiffened with powdered starch, lycopodium, or any indifferent powder. This forms a perfectly stable ointment, which can be made to subserve

*Archives Otology, vol. XIII, p. 17.

many important uses in practice. It was intended to conclude the paper with a report of several cases of suppurative otitis media, acute and chronic, treated in this manner, but the paper has so far outgrown the limits originally intended that I am admonished. It will be unprofitable to protract my remarks to any greater length than may be required to briefly recapitulate the salient points, which I have endeavored to bring out. You have heard the testimony in favor of its wonderful property of preventing the development of those bacterial elements found in all putrefactive processes. We have seen that its composition is such that it has dual properties, one of which is germicidal or antiseptic, at present we do not know which, and the other astringent. By virtue of these its use is indicated in all conditions where *hyperemia* and *purulency* are present. These conditions are found in eye and ear diseases more frequently than in other parts of the body. In conclusion then, I believe the published testimony will bear out the assertion that Boroglyceride is one of the most valuable therapeutic agents now on trial, and awaiting the verdict of the profession. Just what that verdict will be, time alone can tell. But the conclusion seems irresistible that a remedy, of such positive power and wide range of usefulness, can not disappoint its warmest friends.

HISTORICAL AND CRITICAL NOTES

ON THE

DELIVERY OF THE PLACENTA.

BY J. C. REEVE, M. D., DAYTON.

The announcement of my subject may strongly suggest to you a needless occupation of your time. A process which we witness and assist almost daily, the various steps of which are well known, and the principles of management of which seem to be firmly fixed, might appear to need no farther consideration. A perusal of late journal literature, however, has impressed upon me the feeling that the subject might be profitably reconsidered. Within a year a paper has been presented to one of the State societies advocating immediate removal of the after-birth as soon as the child is born. In one of the noted schools of Europe, where all our young men go to be taught better things than they can learn at home, the opposite plan has been adopted, and the placenta has been allowed to remain until thrown off by the natural powers. Both these plans have been tried in the past and the record of their results is to be found in the history of obstetrics. I need scarcely add that both have been abandoned on account of the evils resulting from them.

To confide the delivery of the placenta to the natural powers, rendering assistance only when absolutely necessary, was the method of the ancients. During the middle ages, however, the opposite plan was pursued. Under the domi-

nant idea that the cervix would contract and imprison the after-birth, it was hastily removed as soon as the child was born, even before division of the cord. Immediate delivery of the placenta, even by the introduction of the hand, was taught by the first lecturers on midwifery of London, Chamberlain and Maningham,* and was the general practice of the profession. Without any waiting after the birth of the child, violent and perturbative measures were resorted to in order to bring away the placenta, and when these were not successful, or more frequently perhaps without them, the hand was passed into the uterus and the placenta dragged away.† Harvie‡ says that it was "a most general practice" to make the patient cough and sneeze, or to produce vomiting by smoking tobacco, in order to effect the extrusion of the after-birth. He relates a case of great irritability of the stomach and dangerous prostration from the use of this remedy for this purpose. The same author says it was "the most general method" to deliver the placenta immediately by the introduction of the hand. The same statement is made by Douglass,|| and the same practice is taught by Burton.**

The dangers of this mode of treatment are manifest and serious, even fatal consequences frequently resulted. Sudden emptying of the uterus, except by its own contractile power, is always a dangerous process. The dangers of manual extraction are recognized by all modern obstetricians. McClintock†† says: "Speaking from hospital experience, I would regard the manual extraction of the placenta as one of the most dangerous operations in midwifery." Of twenty-eight hospital cases under his observation ten died.

Two great teachers appeared during the middle period of the last century, whose influence put a stop to the barbarous and dangerous practice of immediate delivery of the placenta. They were William Smellie and William Hunter.

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*DENMAN—An introduction to the Practice of Midwifery. 7th Edition. London, 1832.

†A short account of the State of Midwifery in London, Westminster, etc. By John Douglass, Surgeon. London, 1736.

‡ Practical Directions, etc. By John Harvie, M. D., 1767.

|| *Op. cit.*

** Letter to Smellie, London. 1753.

†† Notes to Smellie's Midwifery. New Sydenham Society. Vol. I, pp. 236, 237.

From the former, who may be justly termed the Father of English Midwifery, we learn some of the reasons for the practice then in vogue.* Whenever there was delay in the delivery of the after-birth, a male practitioner was called in, who never failed to blame the midwife for not having taken it away sooner, attributing all the difficulty and all puerperal troubles which might follow, to her failure to act promptly; hence the patients were frightened at the least delay and always demanded immediate removal. Smellie at first "swam with the stream of general practice," but he had the courage to observe nature and soon learned by experience that the natural powers were competent, in the great majority of cases, to deliver the placenta as well as the child. He recognized a fact of prime importance, that a period of rest occurs after the birth of the child, and that such a period is necessary for the recuperation of uterine force. The doctrines Smellie taught were closely in accord with those of standard authorities of the present day: a period of rest after delivery of the child, mild measures first, such as gentle traction of the cord, friction and kneading of the abdomen, and the introduction of the hand for extraction only after these had failed, "always observing a happy medium between the two extremes of practice, that of delivering too soon, and that of waiting too long."

Hunter not only opposed the immediate extraction of the placenta, but went quite as far to the other extreme. He was moved, doubtless, by the evils which he must have frequently seen, of the prevailing practice, which did very much to give currency to the phrase "meddlesome midwifery is bad," a phrase which, after having rendered good service, has been more misused and abused than any other connected with the art, and one which has exercised a retarding influence on its progress. Hunter left the extrusion of the placenta entirely to the natural powers without reference to the time which might be required. The doctrine had been taught by Ruysch,† of Holland, about a century before [born 1638, died 1731], and his experience had strengthened Smellie in the departure he made from the current practice of the day. The let-alone policy was pursued by Hunter until towards the close of his life, when some most unfortunate experience convinced him of his

* A Treatise on Midwifery. 2d Edition. London, 1752. Vol. II, pp. 400.
†SIEBOLD, Geschichte der Geburtshulfe. B.II., p. 226.

error. Several untoward and some fatal accidents were the result of the practice in his hands. There is abundant evidence of the dangers attending this course on record, besides Hunter's. White* gives the particulars of two cases of fatal flooding from this cause. Saxtorph says that of three cases thus treated, known to him, two resulted fatally.† In the hands of one of Hunter's pupils the placenta remained thirteen days and was then expelled in a putrid state, the patient dying the same day. Under the care of another the patient died at the end of eleven days with the placenta undelivered.‡ Twice during my professional life I have known a fatal result from the patient being left before the placenta was delivered. In one case the attendent went away for medicine or an instrument, in the other to obtain counsel; in both hemorrhage came on and death occurred during the absence. The influence of Hunter extended over a considerable period of time. Denman was his pupil, and his teachings and writings were authority down through the early decades of the present century. Although not going so far as his illustrious preceptor, his directions for the management of the placenta are most extraordinary. Thus, whether the placenta "descend into the vagina spontaneously, or be brought down by the gentle assistance given, it should be suffered to remain there till it is extruded by the pains." He says that it seldom remains in this situation more than an hour, but whether two hours or twenty-four is of no consequence unless there be hemorrhage. The most extraordinary part of his doctrines is that he counsels waiting just at the time when action is most demanded and can do no injury. "Especially if we can feel that part of it into which the funis is inserted we have no occasion to be alarmed or to hurry its exclusion, unless there be an existing hemorrhage."

"In the case of a lady of the highest rank to which I was called in consultation, we suffered the placenta to remain twenty-two hours before it was extracted, but there was no hemorrhage, and the part of the placenta into which the funis is inserted was very perceptible."

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*A Treatise on the Management of Parturient and Lying-in Women. By Charles White, F.R.S. London. 1773.

†SIEBOLD, op. cit.

‡MERRIMAN. A Synopsis of the various kinds of Difficult Parturition. London. 1820.

Nothing is said of the condition of the poor patient's body, or of her anxiety of mind, during this long period.

The experience of Hunter's pupils already given, shows to what a length of time after the delivery of the child the placenta may remain without being thrown off by the natural powers. Of course there are rare and exceptional cases. In the vast majority of cases it will be expelled within an hour. This was the experience of Denman and Smellie. Harvie,* who directs his pupils to leave the placenta to nature, says that he has never known of one being retained longer than nineteen hours.

Passing from physiology to the domain of pathology, among the curiosities may be mentioned a case which is on record of rupture of the uterus in which the placenta was not thrown off until a week after the extraction of the child, the death of the mother only occurring twenty-six days after the accident and twenty three days after delivery.†

According to Stoltz, who made a long trial of abandoning the delivery of the placenta to nature, it may not be thrown off for fifty hours.* The statistics of Dubois, Cazeaux and Depaul show the mean time of natural delivery to be two hours.|| The recent experience at Strasburg with this method showed that in one hundred cases the placenta came away in twenty-four within the first half hour, twenty times within the second half hour, twenty-five times in the second hour, eleven times in the third hour, nine times in the fourth, five times in the fifth, three times in the sixth, twice in the eighth, and once in the twelfth.**

The practice of leaving the delivery of the after-birth to nature has been the subject of a malpractice suit in this country. Thirty six hours after the delivery of the child the patient was found with the placenta not yet delivered, suffering from distension of the bladder, which had not been emptied since delivery, and greatly prostrated by loss of blood. The defendant offered to prove that he was a "botanic" practitioner, and that by that school of medi-

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* *Op. cit.*

† Observations on the Rupture of the Gravid Uterus, etc. By Andrew Douglass, M. D. London, 1789. P. 39.

‡ Devi.liers; *Nouvean Dict. de Med. et de Chir. Prat.* T. XI., Art: *Deliverance.*

|| Charpentier. Traite Pratique des Accouchement. Paris, 1883. T. I., p. 457.

** Garrigues; Removal of the After-birth. *Amer. Jour. of Obstet.* May, 1884.

cine it was deemed improper to remove the placenta, and that it should be permitted to remain until thrown off by the natural powers.*

The influence exerted by the mode of delivery of the body of the child upon the extrusion of the after-birth, is a point of some practical importance, and one that has been worked out in the past history of the art. White, of Manchester, first called attention to this point, so far as I know. He was a man far in advance of his times, and must be recognized as one who improved midwifery in some very essential points; in the management of the puerperal state he differed diametrically from his contemporaries, and in regard to diet he required to be followed a course which has since been but little improved.

He says:† "As soon as the head is produced it is the custom of many practitioners to seize hold of it immediately, and to drag it forth with the greatest expedition, as if the safety both of the mother and the child entirely depended upon it.

"This practice is founded upon a gross mistake. From many observations I am convinced that upon the management of this part of the delivery depends the easy or difficult exclusion of the secundines and the prevention of after-pains. Leave things to nature and in general she performs her work the best, without assistance. Where nature is very slow in relieving herself, assistance ought to be given."

Osborn‡ confirms this from his own observation, and even counsels keeping back the shoulders and hips by direct pressure in order to promote delivery of the after-birth.

The most striking clinical example, however, is given by Merriman|| in the appendix to his work.

"During the time that I held the office of physician-accoucheur, at the Westminster Dispensary, of the twelve stated midwives belonging to that charity, one, in particular, was very frequently in the habit of sending for me, for assistance, in consequence of retention of the placenta; so that I was called by her to such cases nearly as often as by

* Bowman vs. Woods. Civil Malpractice; by Milo A. McClelland, New York, 1877.

† *Op. cit.*, p. 105.

‡ Essays on the Practice of Midwifery. By William Osborn. London. 1792.

|| *Op. cit.*

all the others together. I had often endeavored to discover the reason why this midwife should be so unfortunate with her patients, but I could obtain no satisfactory explanation. A few years afterwards the daughter of this midwife requested that I would give her some instructions in midwifery, in the course of which I strongly pointed out the propriety of leaving the expulsion of the shoulders to nature, as preparatory to a more ready and complete separation and expulsion of the placenta. She told me that her mother said she thought it the greatest nonsense in the world to allow a poor woman to wait for a pain to deliver the shoulders when it was possible to finish the labor by a little assistance without delay, and that she always used to bring the child as soon as the head was born. This explained the mystery."

The practical lesson is not needed to day, except to the young accoucheur. From observation, and from my own experience, I believe there are few things not more easily acquired than a due estimate of the importance of a regular and gradual completion of each step of the wonderful process of parturition.

The effect of ergot in producing irregular contraction of the uterus and consequent difficulty in the delivery of the placenta is, I believe, generally recognized. I can speak of it from my own personal experience. I can look back to a time when the administration of this medicine to hasten the birth of the child was not uncommon, and when a resort to instrumental aid was considered justifiable only when the life of the mother was in danger. I learned to expect retained placenta whenever I had given ergot, and learned also, I regret to say, the injurious influence of the drug upon the child. We live under clearer light now, with the generally accepted doctrine that ergot should never be given before the birth of the child, or, at least, only just as the head is clearing the vulva.

The etiological relation of removal of the placenta to inversion of the uterus deserves consideration. This accident of parturition is of extremely rare occurrence, it is true, but when it does occur it is most serious in regard to the life of the patient and is pretty sure to seriously compromise the reputation of the attending physician.

The prime truth in regard to uterine inversion has been

but very slowly recognized, and certainly is not yet generally accepted by the profession. The truth is that not by any one mode alone does the inversion take place, but in various ways; that sometimes it is caused by internal traction on a relaxed uterus, sometimes by external pressure on the same, and very frequently it is the result of active contraction of the organ itself, no impulse having been in any way given by the accoucheur. In times past the accident was believed to be always caused by dragging at the cord to deliver the placenta. This is the most plausible way of accounting for it and an explanation sure to be accepted by the laity. This doctrine has eminent authority in its favor almost down to the present time. Dr. McClintock says: "I cannot help expressing my conviction that, whenever the uterus is inverted at the time of parturition, it is to be attributed to some mismanagement of the delivery of the placenta." Nothing could be more unjust. The opinion is based on the statistics of the Dublin Lying-in Hospital, which show only one case of inversion in 190,600 labors. But since the average occurrence is, according to Crosse, 1 in 140,000 labors; or, according to Braum, 1 in 150,000,* the Dublin Hospital certainly cannot boast very much of its immunity, and certainly its figures do not warrant the universal condemnation of those under whose care the accident may happen. Nor does the Dublin school endorse such a statement; some of its best men admit inversion by active contraction.†

That inversion of the uterus may be, and often has been, caused by pulling at the cord is very true. It has occurred in cases in which the cord is unusually short, or where delivery took place in the standing position. But so is the proof equally clear that it may be a spontaneous act of the uterus itself, and this mode of inversion was recognized by Ruysch, Merriman, Blundell, Dewees, and several others previous to our own times. Of the 142 cases given by Lee in his essay, twenty-three were spontaneous. I may be permitted to refer to some well-marked examples. There is a case given by Radford in his essay,‡ and one by Tyler Smith,‖ in both of which the description is almost word

* Lusk; Midwifery.
† See Obstet. Soc. Proceedings, *Obstet. Jour. Great Britain.* Vol. 1, No. 5.
‡ *Dublin Medical Journal*, 1837.
‖ London Obstet. Soc. Trans. Vol. X.

for word. With the hand resting on the contracted uterus it was suddenly felt to subside into the plevis and immediately appeared in the vagina. There was no pressure; no pulling at the cord. The observers were competent and their testimony can not be questioned. Two cases are on record in American medical annals which may be mentioned because an unusual amount of attention was directed to the patient when the accident occurred. In the first* the patient had suffered an inversion in her first labor under care of a midwife, who had been blamed for the accident. The medical attendant called to the second confinement was selected on account of his reputation as an obstetrician and was forewarned. He had his patient in position so as to render effective every effort to prevent a recurrence of the accident as soon as the child should be born. With one strong and protracted pain, child, placenta and uterus were expelled together. The other case is given in one of the best essays, if not the best, ever written upon the subject.† It was again a second labor; after the first, manual delivery of the placenta had been necessary. This time the attendant had waited half an hour after the birth of the child, was holding the cord loosely in his hand, and talking with the patient of the probability of repeating the former operation, when all at once, and with a shriek, placenta and uterus were expelled together.

I have selected these cases as typical ones. I do not think it a work of supererogation. Within a year past a medical man in good standing and very considerable experience, in one of the Southern towns of the State, attended a young woman, aged 20, in her first confinement. Labor went on regularly and well, and the child was delivered naturally after about six hours. The doctor waited about fifteen minutes for pulsation in the cord to cease before tying it, which is very positive proof that he is not a hasty or a rash man. The uterus contracted well; the insertion of the cord could be felt; gentle pressure was made on the fundus with the whole hand and as the placenta descended it was lightly drawn away, when there was a sudden rush and the whole uterus was extruded. There was immediate

Cleveland Medical Gazette, June, 1860; p., 357.

† A Statistical Inquiry into the Cause, Symptoms, Pathology and Treatment of Inversion of the Womb. By Charles A. Lee, M. D., *American Jour. Med. Sci.*, October, 1860.

collapse, a speedy consultation and reduction of the organ without much delay, but death followed in a few hours after. A man should not be blamed to whom a calamity like this comes; it is bad enough to suffer it without having also to bear unjust censure. There was no violence exercised in the case. In the only case of uterine inversion I ever saw, which occurred under the care of a medical friend, since dead, an honest man, he assured me that he did not pull at the cord or use any force whatever in delivering the placenta.

Although, over and over again, in lists of cases of inversion, "pulling at the cord by the midwife" is given as the cause, I believe that in many cases this is pure assumption, and that in the majority it is gross injustice. The annals of obstetrics show that ignorant midwives have done all sorts of outrageous things, but when it comes to inverting the uterus by pulling at the cord, the physician is certainly more likely to do it than a midwife. He pulls in the axis of the straits of the pelvis, of which she knows nothing, and a large portion of the force she applies is expended in drawing the cord against the pubes. I presume there are few members here who have not been called to cases where the cord has been torn off in attempts to deliver the afterbirth, and all know how fragile it is, and how easily it gives way. There must be a favoring condition of the uterus, a state of complete inertia, as the prime factor in the process, whenever traction on the cord has been effective in causing inversion.

If this serious accident of childbirth is to be referred to modes of delivering the placenta, I take the ground that it is quite as likely to result from the present accepted mode —Crede's—as by pulling the cord. Given the state of inertia of the uterus just referred to, which is one of the conditions for inversion, and pressure on its external surface cannot fail to produce a dimpling or depression of the fundus, which then, by the well-known process, becomes complete inversion. Possibly I shall be indicted for intimating that a process so generally followed and so universally lauded may not be perfect. But I do not hesitate to say that Crede's method cannot always be carried out; it is not always possible to grasp the uterus and apply pressure generally over its surface, or over the major part of it; and I take the position that if the pressure is applied to a portion

of the uterine globe, it is liable to produce depression of the walls, the initial step of inversion; that if Crede's method is unskillfully performed, it is as likely to cause disaster as is delivery of the placenta by traction. Recently a good many voices have been heard to the intent that Crede's method is not perfection, and there are cases on record showing that it has been effective in producing uterine inversion. In a debate at the London Obstetrical Society* Dr. Edis called attention to the increasing frequency of uterine inversion, and stated his belief that it was due to the employment of too much or ill-directed force in the expulsion of the placenta according to Crede's method. Spigelberg† recognizes expression of the placenta as a cause of inversion, and gives reference to cases. Munde, in this country, has expressed his dissatisfaction with Crede's method.‡ Many of Crede's countrymen have written against it.|| And I must add that when Crede states that in two thousand labors "the average duration of the third stage was only four minutes and a half," he writes down his own condemnation. This is not nature. Smellie recognized the truth. For the safe delivery of the placenta we must wait awhile; allow the uterus a time of rest; give its fibres time to undergo tonic contraction, and its ganglionic centers time to gather power for the final effort. With clear recognition of the physiological process, we can render intelligent and efficient aid in pathological conditions.

No teaching as to the delivery of the placenta can be scientific which does not direct a consideration of the character of the preceding labor, and as the character of labors varies, so must the management of the third stage. If the pains have been frequent and energetic, and the birth of the child rapid, the placenta may be delivered very soon; if the labor has been tedious and delivery slow, or if the uterus has been exhausted by violent and long continued effort, time must be given for the recuperation of its contractile force and nervous energy.

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*Obstet. Jour. of Great Britain. March, 1877; p. 815.

†Lehrbuch der Geburtshulfe. 1878.

‡Amer. Jour. Obstet., May, 1884.

|| References given by Garrigues: "Removal of the After-Birth." Amer. Jour. Obstet., May, 1884.

Foreign Bodies in the Urethra:

With the Report of a Case in which a Bullet was Removed Thirteen Years after the Receipt of a Wound in the Groin.

BY N. P. DANDRIDGE, M. D., CINCINNATI.

The following histories are given as examples of foreign bodies in the urethra, and their recital will give an opportunity for the consideration of the symptoms and the treatment appropriate in such cases.

J. B., adult, while suffering from an attack of gonorrhea, found suddenly one night that he was unable to pass his water, and after repeated attempts, applied to Dr. Eichberg, under whose care he was at the time, and was readily relieved by the introduction of a soft catheter. For several days following he passed his water naturally, but with some difficulty, and the doctor then introduced a steel sound for the purpose of exploration, but just before the instrument passed into the bladder it came in contact with a foreign body, its presence being indicated by a grating sensation.

The following day I saw the case with him, and easily verified the presence of a foreign body in the bulbous portion of the urethra. The bladder was readily entered, but the instrument always gave a distinct grating sensation, as though passing over a roughened surface deep in the urethra. A pair of Thompson's urethral forceps was introduced, and after several attempts the stone was seized and drawn to within an inch of the meatus, when it escaped from the grasp, and all attempts to seize it in its new position were unsuccessful, until by grasping the penis firmly behind, so as to prevent the foreign body being pushed be-

fore the forceps, and having an assistant put the urethra upon the stretch, so as to obliterate any folds which might exist, a stone weighing nine grains, rough upon its surface, and measuring two-fifths inch by three-fifths inch in diameter, was drawn through the meatus. The pain was so slight that no anesthetic was given, and the irritation which followed soon subsided. The stone was extracted a year ago, and the man has since had no trouble. The symptoms in this case are those usually found in similar ones when calculi escape from the bladder into the urethra: sudden stoppage without premonitory symptoms, and subsequent ability to make water, usually, however, with much greater difficulty than in the present case. In all probability, even though the catheter had not been used, the urine would very soon have passed, drop by drop, owing to the irregular shape of the obstructing body. The rubber catheter failed to appreciate the presence of the foreign body, which the steel sound at once indicated.

The second case, for the record of which I am indebted to Dr. Wilder, at that time interne in the Cincinnati Hospital, is much more unusual and interesting; indeed, in many of its features, is quite unique.

F. S., colored, age 26, groom, well developed, came to the Hospital December 17th, complaining of stricture of the urethra. Four years ago he states that he contracted syphilis, and a year and a half ago he had for the first time an attack of gonorrhea. From this latter he says he recovered entirely. About a year ago, while urinating, the stream suddenly stopped on him, and since that time he has not been able to void his urine in a full stream, it dribbles away, and the trouble seems to be constantly increasing. At the time of entering the Hospital he could only pass water drop by drop, and the effort was attended with severe pain.

The urine contained some pus and a good deal of thick, tenacious mucus. A hot bath, to be followed by rest in bed, with ten grains of Dover's powder, were ordered. The following day he passed his water more freely, and with less pain, and felt decidedly better.

Dec. 19. The patient says the difficulty in urinating was of sudden occurrence, and that previously he had been free from all such trouble. Little attention was paid to this statement, though it was remarked at the time that the at-

tack of gonorrhea, which he admitted, was too recent to account for so tight a stricture as he seemed to be suffering from.

A medium sized bougie was introduced for the purpose of exploring the urethra and locating the supposed stricture, and came in contact with what seemed to be a foreign body, four and a half inches from the meatus. A steel sound was now substituted, and at once gave a distinct grating sensation from contact with some hard substance which obstructed the passage and prevented the further progress of the instrument. From this examination it was apparent that the urethra was obstructed by a foreign body, and recalling the man's statement, it was inferred that a calculus had escaped from the bladder when retention occurred a year before, and being too large to pass had become impacted. External manipulation revealed an induration behind the peno-scrotal angle.

The day following, the man being anesthetized, an attempt was made to seize the foreign body with a pair of forceps, and to extract it. This attempt was unsuccessful, as it was found impossible either to grasp or move the supposed stone. A full-size steel sound was therefore introduced as far as the obstruction, and an incision made at the peno-scrotal angle, directly upon the mass, which was made as prominent as possible by grasping the tisues on either side with the fingers of the left hand. To my great surprise a bullet, somewhat encrusted and flattened, of 40 calibre, was extracted. In order to remove the ball it was necessary to extend the incision well down into the scrotal tissues. The peno-scrotal angle was not chosen by preference, as the lax scrotal tissues are likely to offer a favorable opportunity for the infiltration of urine, especially when the patient passes his water while in the recumbent position; but as an examination showed that the body could only be reached from the perineum by a much deeper and more extensive incision, it was deemed better to incur the the above mentioned dangers and approach it from the position where it was most superficial.

After the removal of the ball a No. 16 English sound was easily carried into the bladder. The wound was filled with iodoform, and the patient carried to bed.

The following day the patient told us what he had not before mentioned, that in 1870, while in California, he had

been shot in the groin, and that the ball had not been extracted, although careful search had been made for it by several physicians, and he pointed to two or three cicatrices on the inner side of his thigh, which he said had been left by the incisions made in searching for it. The cicatrix at the point of entrance was in the left groin, just over the femoral vessels, about an inch below Poupart's ligament. He further states that for some time after the accident the urine escaped from this wound.

Since the operation the urine passes freely from the cut and meatus; the only pain felt is a slight smarting when it comes in contact with the cut surfaces. Pulse and temperature are quite normal. In order to prevent the tendency of the urine to infiltrate these loose tissues, the man was instructed to pass his water only in the knee-elbow position, and always to draw up the scrotum between the thighs.

Jan. 16th, he left the hospital entirely well, and able to pass his water freely without pain.

June 5th, the man came into my office, and I found the wound firmly united, with some induration about it. The urine comes freely and in full stream. During erection he complains of a sharp pain at the seat of the incision, and there is, he says, a tendency for the penis to bend downward. With this exception, erections seem to be perfectly normal. The urethrameter can be expanded to 35 m. in the bulbous portion of the urethra; at the position in which the bullet was lodged there is a linear stricture of a calibre of 30 m., which apparently does not at all interfere with the passage of the urine.

Since writing the above, my friend, Dr. John Jones, has told me of the following case which came under his observation some years ago. He was called to one of the station houses to see Red Wilson, who had just been shot. The ball had entered the buttocks, and exploration of its track failed to reveal its situation. In about an hour and a half after the receipt of the wound the desire to urinate became very urgent, and after a violent effort, something suddenly escaped from the urethra, followed by the free discharge of bloody urine. A 32 calibre bullet was found in the bucket into which the urine was passed. Recovery rapidly ensued.

The case I have reported presents many interesting and important features—the gunshot wound of the bladder and the escape of the bullet into the urethra thirteen years later,

and its retention there for twelve months, giving rise to persistent symptoms of obstruction, and finally its successful removal by incision from the free portion of the urethra, without the occurrence of a persistent fistula at a point where wounds do not usually heal.

Gunshot wounds of the bladder are not of very rare occurrence, and the subject has been very fully discussed, especially by Bartels, in Langenbeck's *Archiv. fur Klin. Chir.* Bd. xxii, in a paper based on the consideration of 504 cases of wounds of the bladder. The facts contained in this paper are given by Coulson, in his work on the Diseases of the Bladder and Prostate. Of the 504 cases, 285 were gunshot wounds, and in 135 of them the pelvic bones were more or less injured by the ball—a complication which does not seem to increase the mortality, though it is likely to delay recovery from protracted suppuration during the formation and separation of sequestra, and, it may be, from the formation of concretions around spicula of bone which have found their way into the bladder. In 127 cases the ball entered in front, and in 100, behind, in each the mortality was 26. The ball traversed the body in 136 cases, with 20 deaths, and in 90 cases it lodged, and of these 23 terminated fatally, showing that a double wound is less dangerous than a single one, a fact due undoubtedly to the freer drainage which occurs. Bartels shows that all cases when the peritoneum is injured terminate fatally, but it is more than probable that this prognosis may be somewhat modified by the advance constantly being made in abdominal surgery.

Penetration of the bladder need not occur at the time of the accident, but may take place a long time afterward, by a process of suppuration around a ball lodged in its wall. In addition to the missile itself, bits of clothing, clots of blood, pieces of wood or splinters of bone may all be driven into the bladder and form the nucleus of a future stone, or may subsequently be carried into the urethra, and thence escape.

These same facts are further illustrated by cases of gunshot wounds which occurred during the war, and are reported in the Surgical History. 183 cases in all are reported, with 87 recoveries, or 47.2 per cent. Recovery may be complete, or there may remain a persistent external or recto-vesical fistula. The operation of lithotomy

is reported as having been performed 21 times in persons who had suffered from gunshot wounds of the bladder or pelvis, for the removal of the foreign body, and the concretions which had formed about it. In 12 of these cases, bullets were found, six times simply encrusted, and four times as the nucleus of large stones. Once an arrow head was removed, and in eight cases, bone, cloth, hair, or soft organic matter formed the nucleus.

These operations, of which 17 were successful, 2 fatal and 2 doubtful, were performed at intervals varying from a few days to nine years after the receipt of the injury.

A full consideration of gunshot wounds of the bladder would occupy too much time, and the above facts are quite sufficient for our present purpose, so we may turn to the second feature of our case, namely, the escape of the foreign body into the urethra, and its successful removal.

There are several old cases mentioned in medical literature in which bullets are represented as escaping by the urethra after penetrating the bladder. A list of these will be found on page 268, Surg. Vol., Part II, Medical History of the War. The particulars of the only recent cases are given on page 286, as follows:

J. R., age 22, shot Aug. 4, 1867, ball entered plevis, midway between the posterior spine and the tuberosity of right ilium. Little blood escaped from the wound at the time. An effort to pass water was soon made, but was unsuccessful, and the catheter was used, and brought away a pint of bloody fluid. After a short interval the instrument was again used, and the urine was found less bloody. August 9th, the bladder had regained its normal tone; when the catheter was introduced for the last time yesterday it came in contact with a foreign body.

The day following the patient noticed that if he attempted to pass his water while in a standing position, the stream would suddenly stop, and no effort could make it flow out. If he was in the recumbent position the water would come freely.

August 19, fifteen days after the accident, the patient felt, while urinating, something enter the urethra, and at once the stream stopped. Making a violent effort, the body was driven forward to near the meatus, and by a little manipulation was removed. It proved to be a conical bullet, and weighed eighty-four grains.

The escape of spicula of bone and bits of clothing were more frequently observed, and on page 284 several cases are reported where bone continued to pass for some months.

The urethra may be obstructed by foreign bodies which have been introduced through the meatus, or which escape into it from the bladder. These last consist of pathological formations, such as calculi (the most frequent), or bits of vesical or renal tumor, or clots of blood; or may be extraneous bodies which have entered the bladder as the result of traumatism, and consist of the missile itself, or bits of clothing, bone, etc., which have been carried before it. These bodies may penetrate the bladder at the time of the injury, or after a considerable interval of time; most frequently they remain in the bladder and form the nucleus of a future stone, or they may enter the urethra and escape or become impacted, as in the case reported.

In the third class the foreign body develops in the urethral wall or the glands connected with it. Prostatic calculi furnish the most frequent examples of this last variety, projecting into the urethra they become encrusted and finally obstruct this canal. They are very rare and need not be further considered.

The first class, where foreign bodies have been introduced through the meatus, I will also dismiss with the simple mention that they consist of a variety of objects, such as pieces of instruments used for surgical exploration, or slate-pencils, glass rods, pins, needles, and a host of other things used by onanists for the purpose of exciting erotic feelings. These cases often require great ingenuity in removing the body without doing some damage.

There remains for consideration those cases in which the foreign body has passed down from the bladder and been arrested either from its size or from the existence of a stricture in the uretha. The large majority of these cases are furnished by renal or vesical calculi. In former days impaction of a fragment was often seen after the old-fashioned lithotrity. The entrance of the body into the urethra generally gives rise to a sudden retention, which frequently occurs during the act of micturition. This retention may or may not have been preceded by more or less marked symptoms of renal or vesical stone. After a variable time, and a variable degree of suffering, the stone may escape

from the meatus followed by a free discharge of urine. If it is too large to pass, urine generally soon begins to flow, usually in small quantities and with considerable pain, presenting the symptoms generally characteristic of a more or less tight stricture. If the stone is low down it can always be felt externally. Inflammation and dilatation behind the point of obstruction occurs, cystitis develops, and stringy mucus and pus appear in the urine. The stone itself is apt to increase from fresh deposits, but seldom completely blocks the channel. In other cases the obstruction is never marked, as was seen in my first case, in which after the use of the catheter the water came without much difficulty. Contact of the rough calculus is apt to produce ulceration, and then it may escape through the urethral wall into the tissues beyond, and finally find its way to the surface, leaving a urinary fistula behind, which generally soon heals, or the communication with the urethra may be closed and the stone remain encysted and ultimately give rise to a perineal abscess.

In some cases a stone as large as a hen's egg (Voillemier) is developed, lying in a cavity having a more or less free opening into the urethra, but giving rise to no serious symptoms. These cases are difficult of detection, for the sound is apt to pass over the stone without touching it. Assistance may be obtained by placing the fingers in the rectum and making counter pressure against the staff. When a calculus has been retained for a long time a traumatic stricture is likely to follow its removal from the contraction which will follow the healing of the ulcerated surface which has occurred. The foreign body may lodge in any part, but is more often found in the membranous portion or just behind the meatus.

In the treatment of these cases, the foreign body may be extracted through the meatus, or it may be pushed back into the bladder, or finally it may be removed by incision. Where a foreign body has engaged in the urethra, extraction should always be attempted, but with the utmost gentleness—no force is allowable for fear of lacerating the urethral walls. If this attempt prove unsuccessful and the stone is near the deep urethra, an effort may be made to gently force it back into the bladder, and, if successful, it should at once be dealt with by lithotrity and then evacuated. It is, however, only permissible to attempt this

when it is apparent that the foreign body is a stone or some friable substance, and not a hard substance, such as a bullet or a piece of bone, which would render crushing impossible. In this latter case to return the foreign body into the bladder would be a decided mistake, for its removal would necessitate the performance of a cystotomy instead of the much less serious operation of urethrotomy. If the foreign body is found in the free portion of the urethra, no attempt, under any circumstances, should be made to force it back into the bladder. When the arrest is due to a stricture, a bougie should, if possible, be carried into the bladder and allowed to remain for some hours, and on its withdrawal a sufficient dilatation may have occurred to permit the passage of the stone. In some cases it is possible to divide the stricture by an internal urethrotomy, and this should be always done, when feasible, in the anterior part of the urethra,—in the deeper portion an external urethrotomy is safer as it affords better protection against infiltration.

For the purpose of extraction, various forms of slender forceps have been suggested, and a very useful instrument is the urethral curette, which readily passes beyond the foreign body between it and the walls of the canal. A special form of slender lithotrite has been invented for use in the urethra where the stone is large and requires reduction in size.

Finally, incision will be necessary where these means fail and should even be preferred in all cases of impaction and where from long arrest the stone has produced ulceration, especially if it is lying in a cavity beyond the urethral walls.

To sum up the indications for treatment, in most recent cases the foreign body can generally be removed by the natural passages by some of the instruments referred to, or can be returned to the bladder and there dealt with by lithotrity; while in long standing cases an external incision will usually be necessary and may be made with the confident expectation that the wound will readily heal.

Sanguineous Cyst of the Neck.

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The investigations of the last half century have accomplished much towards elucidating the pathology of cysts in general. Yet there remain those of one region which are still largely enshrouded in mystery and concerning which there are many dissenting views. I refer to cysts of the neck. In this state of affairs every contribution to the literature of the subject may be of some value. Therefore, I beg to present the following case, and to call attention particularly to the result which followed operative interference.

CASE. Rebecca L., aged 34, single, referred to me by Dr. N. C. Dill, of Riley. The patient belongs to a healthy family, and has always lived on a farm; states that in her childhood she suffered from scrofula; she can give no details as to its particular manifestations. Fourteen years ago, when she was twenty, she observed a growth on the right side of the neck, situated, as nearly as she can remember, midway between the angle of the jaw and the sternum. From its first appearance, the tumor gradually increased in size without producing unpleasant symptoms. Only during the last year has she observed an inability to lie on the left side, since the pressure on the trachea produced very decided dyspnea.

From the accompanying illustration it will appear that the growth situated on the right side of the neck extends from the mastoid process to within one-half an inch of the

sternum. Somewhat larger in size than two fists, it is distinctly pyriform in shape with the base towards the sternum

and the rounded apex on a level with and behind the mastoid process. The surface of the tumor measures eleven inches from its upper to its lower limits and eight inches from side to side. The skin covering it is not discolored and a number of distended superficial veins can be seen running over its surface. Inspection reveals that this surface is uneven and that one long furrow has resulted from pressure upon the growth of the sterno-cleido-mastoid muscle. The latter is particularly tense below where it is as prominent as in old-standing cases of wry-neck. While pressure does not influence the size of the tumor, it shows it to be slightly movable, and therefore free from extensive deep attachment. Fluctuation in the growth is very distinct, and aspiration with the hypodermic syringe yields a bright red fluid which does not coagulate. The absence of solid portions in the tumor, so far as it can be palpated, is easily established.

The cystic character of the tumor being thus established, and the bloody contents examined microscopically, there could be no question as to the presence of a sanguineous cyst and its extirpation was therefore advised.

Operation May 14th. Anesthesia with ether having been induced, a large transverse fold of skin was raised and transfixed in such a manner as to make a wound parallel to the sterno-mastoid muscle. A superficial vein (the anterior

jugular) was thus exposed and divided between two ligatures. The deep fascia was next opened extensively upon a grooved director and the surface of the cyst was soon exposed. The difficulty of recognizing the cyst wall, which usually obtains in the extirpation of cystic growths, was not encountered here, since the growth presented itself in the form of a very dark chocolate-colored and somewhat uneven surface. Before the whole antero-lateral surface of the cyst could be exposed, it was necessary to divide the fibers of the sterno-mastoid muscle which were spread out in a thin layer. When this division was effected, and the margins of the wound were held asunder with retractors, little difficulty

FROM A PEN AND INK DRAWING BY DR. DAVID DEBECK

was experienced in reaching the upper and lower limits of the growth. In the dissection downwards, a transverse nerve loop (communicans noni) was encountered and had to be sacrificed. As soon as the cyst was well exposed, its complete enucleation was accomplished by blunt dissection, the finger, scalpel handle and groved director being used alternately. The hemorrhage attending this part of the operation was exceedingly slight. After removal of the cyst, over two inches of the distended internal jugular vein appeared on the floor of the wound. Over the upper portion of the exposed vessel there was a very perceptible roughness and thickening of the cellular tissue surrounding the vein. It is at least possible that, at some period of the development of this cyst, there was some connection at this point of the cyst and the vein. After carefully cleansing the wound with a solution of corrosive sublimate and inserting a large drainage tube, it was closed by ten sutures. After the operation, the patient progressed favorably, on the third day only there arose an alarming temperature (104°). Most of the wound, I am informed by Dr. Dill, healed by first intention.

The cyst contained nearly one pint of fluid, which was much darker in color than that first removed by aspiration, and which apparently did not differ from blood, except that it did not coagulate. Microscopical examinations revealed the presence of healthy and broken down blood corpuscles, hematin and cholesterin crystals. The cyst did not contain any soft clots, nor were there any firmer laminæ deposited on the cyst wall. This varied in its thickness from about the one-sixth to one-twentieth of an inch in different parts. The internal surface likewise presents remarkable variations. In some parts it is smooth and glistening like the endocardium, while in others it is very uneven presenting irregular elevations and trabeculæ which run from one portion of the cyst wall to another through the cavity itself. Some of these trabeculæ are as large as the chordæ tendineæ and not unlike them. In several places these are so dense as to give almost the appearance of an erectile tissue. Two valve-like folds project from the cyst-wall. A microscopic examination has demonstrated the presence of a quite distinct endothelial layer over most of the internal surface of the cyst. The cyst, which I here-

with present, belongs, unquestionably, to the "sanguineous cysts of the neck."

Cysts like this, which are filled with liquid blood, are of rare occurrence, and their origin is very often beyond determination. The question at once presents itself in such a case, whether the cyst was primarily sanguineous or whether the blood was secondarily infused into the originally serous contents of the cyst by the rupture of a blood-vessel in the wall of the cyst from ulceration or pressure. It cannot be questioned that in the great majority of cases cervical cysts are originally serous in character, and may have a varied origin. They appear congenitally after imperfect closure of the branchial fissures. After birth they may develop from rudiments of the epithelial covering of these fissures, which, without assignable cause, again spring into activity. Nelaton, Verneuil, Schuester and Madelung mention cysts of the neck which sprang from portions of the thyroid gland which, in the development of that organ, have become separated from the main body of the gland. Quite often serous cysts spring from lymphatic glands which have previously undergone strumous change. Fifield has thus described three cystic tumors of the groin, which emanated from lymphatic glands and all of which were lined with a pavement epithelium. In all of these cases of primary serous cysts blood may enter the cyst and thus convert it into a sanguineous cyst, as a hydrocele may become changed into an hematocele.

The sanguineous cysts which are from their inception filled with blood, and to which I believe this specimen belongs, probably always spring from the vascular system. They may begin in the form of vascular nevi, which, by absorption of the tissues between the smaller vessels and ultimately of the vessel walls themselves, are converted into one larger or smaller cyst filled with blood. An angioma springing from the side of a vein and by compression of the latter causing its obliteration may doubtless also be the source of a primary sanguineous cyst. Again, the obstruction of a vein from any cause, and its dilatation back of the point of obstruction, may likewise be the origin of such a cyst. The fact that these sanguineous cysts are almost invariably in close relation to large venous trunks, goes far to confirm the etiological connection which is sought to be established between them. Again, in a number of cases in

which large blood cysts have been found in the neck, the internal jugular or subclavian vein has been altogether absent. The direct connection of such cysts with the blood current can often be demonstrated by pressure, which causes their temporary disappearance. Less comprehensible is the origin of those cysts which cannot be emptied by pressure and from which aspiration first removes a serous fluid to be followed by a flow of blood. In such cases the connection must have been obliterated at some time during the growth of the cyst. That they, however, may spring from anomalies of the vasular system, is established by an observation of Hueter,* in which, after extirpating a cyst which apparently at first contained serum and then blood, it was found that the internal jugular vein was absent.

The facts which in the present case speak in favor of the primarily sanguineous character of the cyst are briefly: 1. Its intimate relation to so large a portion of the internal jugular vein; 2. The endothelial lining of the cyst wall; 3. The, in many places, fasciculated appearance of its internal surface, giving in parts the appearance of an erectile tissue, and the presence of valvular folds; 4. The presence of liquid blood.

Mr. Paget† is of the opinion that when cysts are from their beginning sanguineous, the contents remain fluid until let out; while that which collects by hemorrhage into a serous cyst, is generally either partially or wholly coagulated. Just how, under such circumstances, the blood is retained without coagulation or degeneration is difficult of explanation. According to Virchow,‡ it can be accounted for only by the presence of a communication with the vascular system at large through a number of very small collateral vessels which empty into the sac.

Primary sanguineous cysts of the neck appear congenitally as well as late in life, and develop usually in the side of the neck above and below the sterno-mastoid muscle, and near the mastoid process. Of slow growth, they at times appear to remain stationary, while on the other hand, they may rapidly grow to enormous proportions, so that they extend below the clavicle over the anterior surface of the

* Hueter (in Grunther's Arb. Deutsch. Zeitschrift f. Chir., Bd. viii., p. 467.

† Paget. Surg. Pathol., 1870, p. 413.

‡ Virchow. Geschwulstlehre, Bd. i., p. 154.

chest. When deep-seated they give rise to very distressing symptoms by pressure on pharynx or larynx, into which they have been known to open.* After puncture these cysts refill very rapidly with blood. Even after aspiration of a serous cyst, a threatening hemorrhage into the cyst occurred in Mr. Birkett's† hands, recurring after each puncture, so that extreme anemia of the patient followed.

The diagnosis of cervical cysts is rarely very difficult; not so their therapy. While aspiration in these cases, as already seen, is far from being devoid of danger, it is very rarely followed by permanent cure. The injection of an irritant like the tincture of iodine is, of course, out of the question in those sanguineous cysts in which the connection of the interior of the cyst with a venous trunk can be established by pressure, and it should in my judgment not be resorted to in any case of this kind; for such connection doubtless exists often without being demonstrable by so coarse a procedure. Richardson‡ reports a case successfully treated by the injection of perchloride of iron. The use of the seton and incision with subsequent plugging of the cyst to produce suppuration and closure by granulation, has been practiced for the cure of serous cervical cysts. Two cases that I have treated by incision have given me very unsatisfactory results. The one was a deep-seated serous cyst of the side of the neck, the other an hygroma situated in the median line. In both of these cases fistulæ continue to discharge, although the operations were performed respectively two and one year ago.

There is but one radical measure for the cure of cervical cysts, and that is extirpation. Unfortunately, they are not always so situated that this operation is practicable. When it is feasible, the dangers are probably not much greater than those following other plans of treatment which are more protracted and in the end give unquestionably less satisfactory results.

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* Vincent (Paget) l. c., p. 404, and Savory, Lancet, 1866, Nov. 24.
† Birkett. Med. Chirurg. Transactions, vol. 51.
‡ Richardson. Dublin Quarterly Journal, November, 1869.

Case of Congenital Hydrocephalus.

Tapped Twice and Death in Fifth Month.

BY WM. C. DENMAN, M. D., MARION.

On November 14, 1883, my former partner and friend, Dr. T. B. Fisher, attended Mrs. G., in labor, in which there is nothing to note except slight tediousness, the head being large and delivery effected by forceps. The child, female, was slightly asphyxiated, but one or two slaps and friction with brandy promptly restored it. The amniotic fluid was abundant. At birth the head was noticed to be large, the bones firm and not overlapping. Weight of child, 8¾ pounds, and at one month, 14 pounds. Nothing abnormal was noticed, except the nurse called attention to the child's head when a month or six weeks old, and advocated moulding, but no attention was paid, till at two months of age it became so apparent that the doctor was called in, and recognized at once a case of hydrocephalus. The case was seen and examined by a number of our local faculty and an unfavorable prognosis given. Previous to this the child had been troubled with frequent colic, it was thought, and was restless, and had taken carminative and anodyne mixture quite freely. At this time the case was seen by Drs. Scott, Weber and Herrick, of Cleveland, who concurred in diagnosis and prognosis—recommending the trial of alteratives of the usual character. At a consultation of our local faculty, it was decided to try iodide of potash in 3 gr. doses, three or four times a day, and I was requested to take per-

sonal charge of treatment. The question of tapping was discussed, and deferred as a last resort. At this time the case presented the characteristic features; greatest circumference, occipito-frontal, 18½ inches; axis of eye directed downward, and lower border of cornea hidden by lower eyelid; no mental impairment observed, and special senses highly acute and hyperesthetic body surface; occasional hydrocephalic cry and much restlessnes, which was somewhat relieved by anodyne and carminative, but the child had, and manifested during the entire course, remarkable tolerance of opium.

Iodide of potash did no good, increased flow of urine and gave characteristic odor, but soon disagreed with stomach, and size of head increased uninterruptedly and rapidly—at a rate of ⅝-inch per week. Iodide was discontinued, and only anodynes used till Feb. 12, 1884, when occipito-frontal circumference measured 21½ inches; vertex, from meatus to meatus ear, 15 inches; back head from ear to ear, 13½ inches, and weight of child with head balanced in palm of hand, 23 pounds. At this time Dr. J. F. Baldwin, of Columbus, saw the case with us, and agreed with our decision to aspirate. Child's heart-sounds were normal, but strong pulsation in finger-tips was noticed by Dr. Baldwin, which was thought to be due to force of circulation to overcome pressure on cerebral vessels. Temperature 99° F., and pulse 120 to 30. With Dr. Baldwin's assistance, and that of our local faculty, the child was placed under chloroform, a flannel band passed around occipito-frontal circumference to follow up collapse of head, and passing small aspirator needle into interspace of frontal and parietal bones of left side, low enough to escape longitudinal sinus, six ounces of clear watery fluid was pumped out; sp. g. 1008, albuminous and of usual composition. Circumference of head lessened about one inch, and support was maintained by capping with a double roller. Operation was well borne, not followed by nausea, and condition was not changed, except, perhaps, child seemed less restless for a few hours from relief of pressure. Bandage was gradually loosened and removed when support became unnecessary. Temperature 99⅔°, and pulse 136 to 40 for a day or two, and became normal. Bromide of potash was given for a day or two, but disagreed with stomach. Accumulation went on uninterruptedly. Case regarded as utterly hopeless, but family

were agreed and it was decided to tap again on March 13, and inject pure tinct. iodine. Head occipito-frontal circumference 23 inches; vertex, 16½ inches. Proceeded same as before, except using trocar and canula, puncturing at first site; 10 ozs. of same fluid were drawn, and flannel bandage around greatest circumference left on for a day or two. Head collapsed considerably. Flow stopped at 10 ozs. and no more would come, but kept welling up through canula, preventing effective introduction of tinct. of iodine, and on removal of canula only a drop or two was gotten in through puncture, sufficient resistance being offered to force it back. A few hours after operation, flow began and wetted numerous cloths placed under head to saturation—a large quantity thus escaping—and flow continued interruptedly till death, nine days after. Operation followed by nausea, but for two days no elevation of temperature or pulse. At two o'clock A. M. of third day, I was called to the case and found child very restless, crying violently and in great distress, which had begun the evening before; temp. 103½° and pulse too fast to count. Had taken tinct. of opium, 4 to 6 drops every hour, without any apparent effect. Gave a few inhalations of chloroform, which quieted it some, and a dose of bromide soda, which was vomited; ordered a tepid bath and continuance of the opium. In morning visit condition about the same. Ordered chloral in ½ gr. doses every half hour till child became more quiet, and then repeat as necessary. Opium continued. Chloral had good effect; had a more quiet night, but March 18 notable collapse of head; fretful and restless, and does not nurse, and so weak difficult to get it to swallow any milk from spoon; temperature continued at 102 to 103°, and pulse 160; uncontrollable nausea, chloral discontinued and child expected to die at any time, but life continued till morning of March 22. It is remarkable that this child never had any convulsions. From birth it took opium and had remarkable tolerance. Toward the last it took two drams in 24 hours, and with little effect; it was pushed, for it was desired to avoid suffering. Opium was probably not well absorbed, for some of the stools looked dark, as if they contained it; friends did not notice the odor.

Post-mortem 12 hours after death. Nothing but head examined. Child, originally large, had suffered but little in its nutrition. Incision over vertex; found scalp thin,

about ⅛ inch, and immediate exposure to brain surface, with no fluid external. Rupture of right hemisphere was followed by discharge of 44 oz. of fluid, such as we drew off, and collapse of brain, which was an immense bladder filled with fluid. Falx cerebri was found intact and normal. Brain substance was about ¼ inch thick at vertex, and gradually thickened toward base, where it was an inch or more thick. Its condition was fair, considering the case. Was slightly pale and macerated, and weighed 26½ ozs.. No tubercle or other abnormality. The floor of the cerebral sack was the parts which constitute the floor of the ventricles, all the structures of which had lost their identity except the crura cerebri. The cerebellum, medulla, beginning of cord and base with cranial nerves, presented the usual appearance. Nothing in membranes and bones except expansion—the latter to extreme thinness of edge—was observed unusual, except right and left frontal regions, under frontal eminences, were ecchymotic and roughened as if from inflammatory lymph, over an area of about 2½ inches in diameter. No evidence of brain puncture at seat of aspiration and tapping. What we took off was, I think, from sub-arachnoid space, and to get there it would have to come through floor of fourth ventricle.

Why was there no fluid external to brain at post-mortem? After last tapping. there was interrupted flow, till a few hours before death. Within 24 hours five diapers and numerous smaller cloths were saturated.

Why was flow interrupted? Found that puncture was not far from thin edge of frontal bone, and as head collapsed at time of tapping and afterwards acted as a valve, which accounts for interruption.

This report would be more valuable if more complete, but will record one more case of tapping, and shows the utter folly of expecting any benefit therefrom.

CONGENITAL PHIMOSIS.

BY W. J. CONKLIN, M. D. DAYTON, OHIO,

Professor of Diseases of Children in Starling Medical College.

In calling attention, this afternoon, to some of the evil effects of neglected congenital phimosis, it is not my purpose to attempt an exhaustive essay, but simply to record a few cases which have recently come under my observation.

Phimosis, of greater or less degree, is a common deformity in young children, though certainly less common than the books would lead us to infer. The only published statistics bearing upon this point now accessible to me are those of Dr. Packard in the *American Journal of the Medical Sciences* for October, 1870. Dr. Packard examined ninety-eight children, varying in age from one week to sixteen years, and found fifty-four with entirely non-retractible and three with partially retractible prepuces; making fifty-eight out of the ninety-eight boys—about fifty-eight per cent—phimosed.

Quite recently, I examined the boys in the Montgomery County Children's Home, thirty-one in number, and found two completely and seven partially phimosed—about thirty per cent. In every lad over nine years the glans could be easily and fully uncovered. The boys ranged from two to fifteen years of age.

Ordinarily no bad consequences result from this deformity, but exceptionally it is the initial factor in the causation of many grave local and constitutional disturbances. Affections of the genito-urinary organs constitute perhaps the commoner results of preputial irritation. These may be local inflammations lighted up by decomposing

urine and smegma pocketed under the prepuce; or they may be reflex in character, depending upon irritation of the peripheral nerves in the glans.

The *irritable penis* is a characteristic feature of a pathogenetic phimosis. It is not unusual to meet with children suffering from preputial irritation in whom the penis is in an almost constant state of semi-priapism, and others in whom the slightest touch about the genitals will insure an immediate erection. Such children, for obvious reasons, are liable to become confirmed masturbators. The inflammation of a balanitis or marginal ulceration of the prepuce is occasionally propagated along the urethra to the bladder and gives rise to severe cystitis, which may present all of the symptoms, including hematuria, of vesical calculus. The circumcision preliminary to passing a sound will often, at once, correct the diagnosis and remove the urinary symptoms.

In other instances, marked irritability of the bladder exists independently of cystitis. The case of B. C., a lad of four years, may be adduced in proof of this statement. For several months he had been, at times, greatly annoyed by frequent and urgent calls to empty his bladder. Every few minutes during the paroxysm, which usually lasted from one to four hours, playmates and sports were hastily forsaken, and the pain of urinating often caused him to return in tears. The urine was frequently interrogated and found normal. An examination disclosed a moderate phimosis with the margin of the prepuce inflamed; the gentlest handling of the penis brought on an erection. Forcible retraction of the foreskin and the breaking up of some adhesions at the base of the glans promptly removed the disability. Incontinence of urine in boys, as was long ago pointed out by Trousseau, is a common sequel of congenital phimosis. Many surgeons recognize this to be the prime cause of this intractable and embarrassing malady. It is well to bear in mind that an aggravated enuresis may attend a mild grade of phimosis. I recall a distressing case which had resisted prolonged treatment, but was immediately relieved by circumcision, although the glans could be readily uncovered for nearly half of its circumference.

The violent straining which of necessity occurs in urinating through a contracted preputial opening is liable to produce protrusion of the bowels or rectum. It is a matter of

common observation that an elongated and tight foreskin very generally accompanies chronic prolapsus ani in young children. The frequency with which phimosis and hernia are associated is strikingly shown in the statistics gathered by J. A. Kempe, and is suggestive of more than a mere coincidence. In fifty consecutive, unselected cases of congenital phimosis, admitted in the Children's Hospital, Great Ormond street, London, thirty-one, or sixty-two per cent., were ruptured.

But the deepest interest attaches to those disorders of the general nervous system which are not uncommonly associated with and dependent upon genital irritation. The highly impressible nervous organization of the child renders it especially prone to "nerve storms," and the exceedingly rich nerve supply of the glans penis makes it a fit starting point for all forms of reflex disturbances. These are varied and grave, and may include all kinds of nervous disorders, psychical, sensory, motor or trophic. Perhaps those most often met with are alterations in mental disposition, convulsions, chorea, incoordination of muscles, spastic contraction and paralysis.

The alteration in the disposition of a child suffering from preputial irritation is sometimes very marked. A jolly, frolicsome little fellow becomes irritable and peevish, cries bitterly, especially when urinating, has a capricious appetite, sleeps badly, startles at every sound and is anything but a "well spring of pleasure."

Not long since, I assisted Dr. Jewett in circumcising a little boy about two years of age, who markedly exemplified this indefinite train of symptoms. The cause was long sought in vain until attention was turned to the penis, which was phimosed, in a state of nearly constant erection and easily excited. Before the healing of the wound of circumcision the natural amiability and playfulness of the little fellow returned.

Genital irritation is a well recognized cause of convulsions. Last fall I saw in consultation with Dr. Humphries a babe, then ill with a continued fever, but steady in its nervous system, who had the following history: For two months, during the previous summer, the child had convulsions almost daily, unattended with fever. During this period he had a hundred or more seizures of varying severity. The case proved rebellious to all treatment and

many doctors until it passed into the hands of my friend Dr. Pollock, who recognized the source of irritation in a tight prepuce. The foreskin was incised, and a ring of smegma removed from behind the corona. The spasms ceased at once, and up to this date there has been no recurrence.

One fact which stands out prominently in the histories of many of the published cases and is an important aid in diagnosis, is the frequency with which the convulsions occur during the act of urinating or handling the penis.

Current literature gives abundant evidence that convulsions, epileptoid in character, of long duration and attended with marked loss of intelligence, have been promptly, almost magically, relieved by circumcision.

Congenital phimosis occasionally bears a distinct causal relation to reflex paralysis. The disability may be limited to a single muscle or group of muscles, but affects, by preference, the lower extremities.

We are aware that many authors deny this proposition, but if clinical facts are of any value the number of cases on record similar to the one to be next reported, are sufficient to prove fully that genital irritation can *alone* cause paralysis by reflex influence.

About the middle of February, Willie F., a bright, active boy of eleven years, without hereditary taint, complained of pain and twitching of the muscles of the right leg. On the next day I saw him and found a fully developed, but not severe, chorea limited to the lower extremities. In two or three days the muscles of the face and arms became involved. Paroxysms of muscular contractions of the greatest severity recurred at irregular but short intervals; these paroxysms were characterized by the most violent and painful contractions I ever witnessed. From this time he was unable to stand or move his legs voluntarily. After ten days the violence of the attack subsided, and left him with persistent but slight twitching of the muscles of both calves and almost total paraplegia. The bladder and rectum were not involved. Sensation was unimpaired. Upon examination the penis was found smaller than normal, the prepuce elongated, projecting fully one-half an inch beyond the glans, and the preputial opening barely large enough to admit the smallest probe. Urination was necessarily slow and difficult and attended with

decided ballooning of the foreskin. Circumcision was advised but the parents obstinately refusing to have it done, the case passed out of my care until the latter part of April. His condition was but little changed. For twelve weeks he had not walked a step or even stood upon his feet. His parents now thoroughly alarmed at his helplessness were anxious for the operation, and assisted by Drs. Jewett and C. H. Conklin, I at once circumcised him. Adhesions were found around the base of the glans and a small quantity of soft smegma was imprisoned behind the corona. In less than two hours after the operation all choreic manifestations ceased, and on the following morning he stood upon his feet. In forty-eight hours he walked across the room without the slightest impairment of muscular power. He has since remained perfectly well. No medicine was given after the operation. The suddenness with which this patient recovered after ablation of the prepuce is highly characteristic of that form of reflex paralysis which results from preputial irritation. Certainly, in few fields can the surgeon achieve more brilliant results.

When the paralysis is limited to a single set of muscles it may become an important factor in the genesis of many deformities; thus strabismus, the various forms of talipes, knock-knee and other deformities, may be traced to a neglected phimosis.

In a limited number of cases the difficulty in locomotion does not depend upon loss of power, but upon the inability to properly co-ordinate the muscles. A marked example of this form of disability was lately under observation. George A., aged 3½ years, a well developed, healthy boy, without assignable cause began to complain of pain in his legs. Difficulty in walking was soon noticed, which gradually increased until locomotion became impossible. In the recumbent position the power of his limbs was unimpaired. In standing he straddled widely, and was unable with his heels approximated and eyes closed to maintain the erect position. In attempting to walk his legs were thrown about in a remarkable manner. Organic cord disease was diagnosed and an unfavorable prognosis given. The almost constant priapism to which the mother accidentally called attention suggested a possible cause of his trouble. The glans were partially uncovered and had there-

fore escaped close scrutiny. Forcible retraction of the prepuce broke up adhesions and released a considerable accumulation of hardened and irritating smegma. To the delight and, I may add, surprise of all, his symptoms promptly disappeared without further medication.

It is by no means claimed that symptoms attend every case, or even a large proportion of the cases of preputial contraction; yet there are probably few examples of the aggravated and complicated forms which do not, sooner or later, show the characteristic undermining influence upon the general health of the child so afflicted. But let this be as it may, the remote disturbances, both local and general, are sufficiently common to impress the necessity of interrogating the genital organs in every case of bladder and nervous disease in a male child. Moreover, this examination should not be a superficial one, since it is fully shown in the clinical histories herein given, that the preputial deformity does not bear a constant relation to the character and severity of the symptoms.

In view of the possible contingencies, it is certainly prudent to relieve phimosis whenever found, whether symptoms are present or not. When symptoms of genital irritation exist, or the deformity is aggravated, especially when the preputial opening is smaller than the orifice of the urethra, the indication for immediate operative interference is positive. When this latter condition exists the urine is necessarily dammed back in the extensible foreskin and gives rise to the so-called "ballooning." The retention of a few drops of urine after each micturition undergoing decomposition leads to inflammation of one or both mucous surfaces, to the formation of adhesions, to preputial stone, to imprisoned collections of smegma, to cystitis and other sources of genital irritation.

DRINKING WATER.

BY W. J. SCOTT, M. D., CLEVELAND.

I intend now to make a supplementary report to my report of 1880. Since that time Dr. Ashman, Health Officer of Cleveland, and myself, have made many tests of wells in various parts of the city. We have found very few wells which have escaped pollution to greater or less extent. The Board of Health has generally insisted on people taking lake water, wherever the supply can be had, and, I believe, to the benefit of the general health. This subject now commands the best attention of municipal corporations and civil engineers of the day, as you will see by looking at the reports of the Rivers Pollution Commission of England, and the Massachusetts Reports on Water Pollution.

Towns over the country are new casting about for water supply. Dr. Thornton, of the Board of Health of Memphis, says :

"My views have undergone no change, unless to be more positively convinced that the source from which the present supply is drawn should be abandoned. Aside from the objection to Wolf river, *per se*, each year, as the population increases above and adjacent to the present water works, the danger of pollution will increase. An abundant supply of pure water is as essential to the health and well-

being of a city as a pure atmosphere. Therefore no effort should be spared to substitute Mississippi river water, which can be perfectly purified by sedimentation, for the present supply from Wolf river. Wolf river has become so contaminated as to be unfit for use, and former supplies so imperfect for all wants, that a better and more abundant supply must be sought at any expense."

Painesville, in Ohio, has been compelled to seek a better water supply for public and individual use than their wells give. They have adopted the collective wells system. The wells are sunk in a locality out of town, and in a locality which receives and collects, in the main, the rain-fall of a large region. Necessarily this collection must be surface water, and subject to all the sources of pollution of the region around about, and with all this may be better than the well water of the town.

I am aware that it is claimed that such supplies are purified by filtration and by oxidation of deleterious materials in the ground, by the circulation both of the water and oxygen which takes place there. But in such a basin there is very little movement of the water, and there would be very little oxygen or air absorbed in such a soil, filled to saturation with water.

Last fall I made an examination of water pumped from a similar locality, except there were a greater number of inhabitants in the region. At the crossing of Madison and Euclid avenues, a mile east of Wilson avenue, the city commenced to put in a large sewer. At the depth of twelve feet water came in, while the excavation had to go to sixteen feet. The contractor put in a large steam pump, and kept the water out by sinking a well deeper than the bottom of the sewer. After he had been pumping for a month, night and day, I took a quart of the water, as it ran from the machinery, and found it highly impregnated with animal compounds. This was as I expected to find it, for there were many residences in this region, with the accompanying conveniencies of vaults and cesspools, stables, &c. Notwithstanding these facts, many of the inhabitants claim that the well water is better than lake water—in fact, as good as they want. This condition will supervene where the soil becomes saturated above the water supply, in city and country alike. Wells and springs may in this way become dangerously polluted. An important condition of the

oxidation of animal compounds, converting into nitrates, and nitrites in the soil or latrines or fissures, and thus become inoffensive and harmless, as has been claimed, is whether everything produced in such decomposition is thus destroyed by oxidation. The presence of such compounds is evidence of pollution formerly, and such water should be used with caution.

Frankland, the great English authority on water analysis, says: "The existence of an infectious property in water cannot be proven by chemical analysis, and is only learned, too late, from the effects which the water produces on man. But though chemistry cannot show any existing infectious property, it can prove, if existing, certain degrees of sewage contamination. I believe that those compounds which have resulted from putrefactive changes, and those buried up, on exposure very soon undergo changes which become even more unwholsome properties than they possessed while they were decomposing."

Acting on this belief, we have advised that suspicious wells should not be used.

Dr. Ashman has made a great number of examinations of well and spring waters, by the test and in the manner which I recommended in my former report. The doctor found, in his examinations, a place on Roades avenue where a man having a flower garden and hot house, had deposited a great number of loads of manure, on a small lot of land, and that the ground had become so saturated as to pollute all the wells in the vicinity, and render them unfit for use. Complaints were made to the Health Department of these conditions, and the nuisance had to be abated. The water in these wells was clear, but had a saltish, bad taste. I here append Dr. Ashman's report of these observations in tabular form:

Record of Samples of Water Obtained from Wells in Cleveland During the Years 1881–83. Tested by Solution of Fotassic Permanganate gr. X to Aqua Destil. ℥i; one Drop to the Ounce of Water Tested.

LOCATION OF SOURCE.		RAPIDITY OF DECOLORIZATION.	CONCLUSION.
No.	STREET.		
69	Armitage.	Complete in 36 hours.	Impure—unfit for use.
1245	St. Clair.	" " 24 "	Dangerous to health.
1247	" "	" " " "	" " "
1249	" "	Very slight " " "	Good.
123	Garden.	" " " "	"
6	Garden Place.	" " " "	"
49	Hicks.	Complete " " "	Dangerous.
Cor.	Wilson & Kindwater	Partial " 6 "	Impure.
121	Phelps.	Complete " 24 "	Dangerous.
1670	Cedar.	Partial " " "	Impure—unfit for use.
1672	"	" " " "	" " " "
1668	"	" " " "	" " " "
1605	"	" " " "	" " " "
1222	St. Clair.	Complete " " "	Dangerous.
871	Fairmont.	" " 36 "	"
Cor.	Cedar & Fairmont.	" " 24 "	"
88	Woodbine.	Very slight " " "	Good.
119	Florence.	Complete " " "	Dangerous.
887	Logan.	None perc'l " " "	Good.
70	Baker.	" " " "	"
129	Colfax.	Complete " " "	Dangerous.
1733	Cedar.	Partial " " "	Impure.
21	Beaver.	Complete " " "	Dangerous.
58	Chapel.	Very slight " " "	Good.
42	Harper.	Complete " " "	Dangerous.
104	Slater.	Partial " " "	Impure.
10	Irving.	" " " "	"
84	Armitage.	Complete " " "	Dangerous.
1227	White Av.	Partial " " "	Impure.
66	Orange.	" " " "	"
45	Root.	Complete " " "	Dangerous.
11	Wadsworth.	" " 36 "	"
182½	Orange.	Partial " 24 "	Impure.
——	Florence.	Complete " " "	Dangerous.
24	"	Very slight " " "	Good.
183	Petrie.	" " " "	"
31	Filburt.	" " " "	"
249	Erie.	Nearly com " " "	Dangerous.
1370	Garden.	Complete " " "	"
84	Linden.	" " " "	"
70	Webster.	Partial " " "	Impure.
639	Harkness.	Unchanged in three days	Good.
100	Pear.	" " " "	"
247	Erie.	Partial in 24 hours.	Impure.
249	"	" " " "	"
73	Carran.	Complete " " "	Dangerous.
1239	Luther.	" " " "	"

Record of Samples of Water, etc.—Continued.

LOCATION OF SOURCE.		RAPIDITY OF DCEOLORIZATION.	CONCLUSION.
No.	STREET.		
48	Sumner.	Partial in 24 hours.	Impure.
28	Parker.	None " " "	Good.
Cor.	Cedar & Oakdale.	Partial " " "	Impure.
702	Bolton.	None " " "	Good.
6	Foljamb.	Complete " " "	Dangerous.
41	Blaine.	Partial " " "	Impure.
50	Sumner.	" " " "	"
125	Whitney.	" " " "	"
52	Sumner.	" " " "	"
49	Putnam.	None " " "	Good.
1720	Cedar.	" " " "	"

I have also a short paper by Dr. G. F. Guetsch, which I asked him to make me, giving a short and accurate method of examining water. This I submit, not for the accuracy of the manipulation, but for the ease with which the examination is made.

ANALYSIS OF WATER.

1. EXAMINE THE WATER AS TO CLEANNESS.—This is best done by filling a good sized flask, 1,200 to 1,500 c. c. capacity, with water. The flask is now to be held in front of a black screen, a strong light falling on the flask from one side or above. Any small particles will now become visible. Care must be taken not to confound bubbles of air with suspended matter.

2. NOTE THE COLOR.—It is best seen by placing the flask, containing the water, on a sheet of white paper, and placing by its side, for comparison, a similar flask filled with pure distilled water. The two flasks should stand in good diffused daylight. Should the water contain much suspended matter, or be very dark in color, it may, we think, be said to be unfit for drinking purposes in its then state, though filtration may render it quite good.

3. OBSERVE THE ODOR OF THE WATER.—This is best done by shaking some of the water in a flask with a short and wide neck, about one-third full, and then inhaling the air in the upper part of the flask. Now warm the water slightly and smell again. Warming will often bring out the odor when none could be detected in the cold. Should

it smell disagreeably in any high degree, the water is unfit to drink.

4. Add a little caustic potassa to the warm water; should this cause any unpleasant smell we may be pretty sure that the water contains organic matter in some quantity. Note if any color or precipitate is formed by the addition of the caustic potassa. A precipitate indicates hardness, and if colored it shows the presence of organic matter or of iron.

5. Add Nessler's test for ammonia to about 100 c. c. of the water of No. 4. Should this produce a yellow or brown color, or a brown precipitate, the water contains ammoniacal salts. This is a most suspicious circumstance, and is almost enough in itself to condemn the water for drinking purposes. Should No. 4 have given a precipitate, the water must be filtered before applying test No. 5.

6. Add iodide of potassium, acetic acid and starch paste, about 100 c. c. of water. A blue color indicates nitrites. The starch paste can be substituted by benzine, *pure* chloroform or bisulphide of carbon. This is a most suspicious circumstance, and should the color be all deep, the water can hardly be fit to drink. It is to be noted that iodide of potassium often contains iodate. The acetic acid, starch and iodide should be mixed before adding them to the water, so as to make sure that the color is really produced by the water, and not by the iodate that the reagent may contain.

7. Boil about 100 c. c. of water with a few drops of sulphuric acid, remove from the source of heat, allow to cool, and add sulphureted hydrogen water. Should a brown or black coloration be produced it indicates lead or copper, or possibly bismuth, mercury or silver, and consequently the water should be condemned. Should no color be detected, add a little ammonia or potash. Should this produce a black precipitate, iron is almost sure to be present.

8. Boil a little of the water for a few moments with red litmus or blue litmus, ascertaining by this means if the water is alkaline, acid or neutral. This observation is seldom of importance, except when the water comes from a manufacturing district; it is then often of the greatest value.

9. Add solution of nitrate of silver to about 100 c. c.

of water. If it causes an immediate white precipitate it probably indicates chlorides. Set the solution of nitrate of silver in the 100 c. c. of water in bright sunlight. If a black flocculent precipitate is produced, it is evidence of the presence of organic matter.

10. Add a sufficient quantity of solution of permanganate of potash to about 100 c. c. of the water to produce a distinct color; place this in the sunlight and observe the change in color. If the color is soon lost with the production of a black precipitate, it probably indicates organic matter, but this change can be produced by other substances.

11. Evaporate about 50 c. c. of the water in a porcelain capsule and observe the appearance of the residue. Incinerate this residue, noting the combustion of the organic matter.

12. The degree of hardness can be noted and determined by means of a standard solution of soap. The strength of the soap solution ascertained by its action on a solution containing a known quantity of chloride of calcium.

13. To Estimate Sulphureted Hydrogen.—A litre or more of water, acidulated with acetic acid, is mixed with some starch paste in a large flask, and a solution of iodine in iodide of potassium added from a graduated burette until a persistent blue coloration is produced. The iodine solution used for this purpose should contain .7938 grm. per litre, and then each cubic centimeter represents .0001 grm. sulphur.

14. Examine carefully with the microscope. The results are variable, according to the skill of the observer.

Nessler's test for ammonia is prepared as follows:

Dissolve thirty-five grammes of iodide of potassium in a small quantity of water, and add to it a strong solution of bichloride of mercury (corrosive sublimate) which will cause a red precipitate that disappears on shaking. Add the solution of bichloride of mercury, carefully shaking up as that liquid is added, so as to dissolve the precipitate as fast as it is formed. After continuing the addition of the bichloride of mercury for some time, a point will be ultimately reached, at which the precipitate will cease to be dissolved. When this point is reached stop the addition of the mercury and filter. Add to the filtrate 120 grammes of caustic soda or about 160 grammes of caustic

potash in strong aqueous solution. After adding the solution of the alkali, as just described, dilute the liquid so as to make its volume equal to one litre, add to it about 5 c. c. of a saturated solution of bichloride of mercury, allow to subside and decant the clear liquid.

In Buck's Hygiene the subject is well discussed. He says: "Where the ground water is used from shallow wells by individual families, and in general, where shallow wells are situated near dwellings, the water is particularly liable to become polluted. As is the case with ground water in general, the total amount of mineral matter is of little account, but any appreciable amount of organic matter is objectionable."

Again. "Even if the organic matter were entirely of vegetable origin, it would be objectionable, for it would show that the well received surface drainage, from which all wells should be protected."

We know where masses of vegetable matter are undergoing change from moisture and heat that very soon there are developed animalculæ in great variety, and they live and die there, and they become sources of pollution, by the decay of animal and vegetable materials, and as these are deposited in the water or soil, may prove especially dangerous to health. Water supplies should not be drawn from such sources. And, as before stated, the exposure of such materials to atmospheric influences speedily produces miasmas dangerous to health. The putrefactive decomposition of albumen or albuminoids produces conditions favorable for the growth of algæ, confervaceæ, infusoria, diatomaceæ, ecchinococci, bacteria, vibriones. These are vegetable in origin; are of no special import, except that some of these show by their presence bad conditions. Then we often find the classes of microscopic animalculi, entromatracea, malocostraca, colioptera, with their species, which are very numerous. These while living may not be unhealthy, but it would not be the most pleasant sensation to know that we were swallowing a few hundred thousand of them at a draught. But when they and the algæ die and degenerate together the conditions unfavorable to health are produced. Our reporter three years ago said, "It is also to be noted that the amounts of nitrogenous products of decay are very small, and are, chemically speaking, incapable of producing great changes. * * * Whence

then this universal outcry against organic matter? It is not the great quantity of such material which does the harm, but the quality of it." He also said that "a nitrite is not in itself a terror. A good sized dose of saltpetre is not septic, nor is ammonia." Very true, but a very small dose of albuminoid ammonia, which has not been oxidized to help to make a nitrite, may be septic, especially if it has been derived from a cholera or typhoid fever patient.

The presence of nitrites, nitrates and chlorides, in this part of the country, should render drinking water suspicious. I believe I am justified in saying that since the introduction of lake water into more general use in Cleveland, the health of theolder wards has improved. The reports to the health office establish this fact beyond dispute, that for the last two years in the first, second, third, fifth and seventeenth there have been very few cases of diphtheria, and in the eighth no cases were reported last year. It is true that another condition for better hygiene has been made during the last five years; privy vaults have been cleaned out, and cesspools have been universally abandoned. Now, we have less soil pollution and a better water supply, and consequently better health. The water supply should not only be pure but it should be large and free. It has been said that cleanliness is next to godliness. It has been observed that without cleanliness there is very little godliness.

As reference to the microscopic examinations of this subject, which is of more importance as a part of natural history than as means of water examination—a little work by J. D. Macdonald, M. D. R. N., F. R. S.—London, published by J. & A. Churchhill, should be in the hands of every health officer.

Rupture of the Perineum.

BY H. Z. GILL, A. M., M. D., CLEVELAND.

Professor of Clinical and Operative Surgery, Wooster Medical College.

Rupture of the perineum is an accident of such frequent occurrence to the parturient woman, so important to the immediate as well as future health of those who suffer from it, and yet one that is so frequently overlooked or neglected, that we make no apology for calling the attention of the younger, if not also of the older, practitioner to it.

It is within a comparatively few years that this structure has been studied in its true and important relations to the pelvic organs of the female. The perineum is now accurately described as the solid triangular body which is situated between the external opening of the vagina and the rectum, supporting the posterior wall of the vagina and the anterior wall of the rectum, and maintaining them in their normal directions and relations. This elastic wedge prevents the prolapse of the anterior wall of the vagina (cystocele) and also the dragging down of the rectal wall and uterus. Its laceration, equivalent to its removal, partial or entire, permits, in proportion to the extent of rupture, the prolapse of the vaginal walls, the bladder, the rectum, and finally the uterus, with all their attendant ill consequences.

Ten years ago I made a report on this subject to a medical society in which the frequency of this accident was pointed out, and one of the frequent causes was referred to in the following language: "Here let me say that the anterior shoulder should, as a rule, be made to escape first, by the attendant depressing the head towards the perineum with one hand, and at the same time supporting the perineum

with the other. This is not dwelt upon in many of the text books as it should be. But in institutions where deliveries occur from ten to twenty-five a day, and where every movement is observed, the teaching on this subject is very explicit; and if a student permits a rupture to occur from negligence, the midwife assigned to the case is indignant, and regards her record as injured. To give a somewhat correct idea of the proportion of perineal ruptures, and of the operations to prevent them, I shall take the liberty to quote from the records of the lying-in hospital at Vienna during a part of a year while I was there. From January 1st to July 1st, there were admitted to the institution (or to that part of it attended by male students) 2531 cases of pregnancy. During the months of June and July, of which I have full and definite records, there were delivered 627 cases. Of these there were 21 cases of rupture of the perineum; and 13 cases required episiotomy. Only those cases of rupture were counted which were deemed proper for the application of restorative means."

In the discussion then, (that is ten years ago,) as is nearly always the case, the statement was made that many cases had been seen which recovered without special treatment; and one or two individual cases were cited as having recovered without farther trouble, cases which I had occasion to see, and know had never been well after the accident, and were suffering from the effects of this misfortune when I saw them.

Thus it has been in the past as it is now, the absence of knowledge of good or evil results has been taken as sufficient proof that all has gone well and repair has been perfect. We do not propose to discuss at length the various precautions which should be observed during the parturient act; that is an extensive subject of itself; but it is quite in place to speak of the importance of preventing the laceration as viewed from the immediate as well as from the remote consequencs. Professor Thomas, in his classical work, says: "It is no exaggeration to say that a very large portion of female diseases take their origin in the mismanagement of the lying-in-chamber. * * * * * * The importance of the perineum in this connection can not be exaggerated. Its rupture furnishes one of the most fruitful sources for the absorption of septic elements, and I do not hesitate to say that thousands of women suffer through their lives from uterine displace-

ments, engorgements, vesical and rectal prolapse, in consequence of injuries inflicted upon it during the parturient act." Of the opinion that rupture of the perineum not involving the sphincter ani, is a matter of little consequence, he says: "It is a dangerous dogma," one which, in his opinion, "renders him, who entertains it, an unfit person to be entrusted with the grave responsibilities of the lying-in-chamber." The argument mentioned by him, as the one commonly offered, is of precisely the character of those presented in the discussion following my former paper. Such arguments (if they be worthy of being so called) are of no value as matters of fact, but are absolutely dangerous, if any one should adopt their legitimate conclusions. Lacerations down to but not including the sphincter, at the time of labor, are of such moment that Dr. Thomas says: "For him, he would rather have a patient sustain a fracture of the radius than a laceration down to the sphincter ani." Is he too enthusiastic? Is he too strong in his language? Who has a better opportunity to correctly appreciate the subject?

But, the rupture having occurred, partial or complete, what is the thing to be done, and at what time should restorative measures be instituted? Slight rupture through the mucous membrane (fourchette), and very frequently including a small portion of integument, occurs in nearly all cases of primiparæ, whether the patients be well advancedin years, beyond twenty-five or under twenty, or not, more frequently, of course, in the former cases. Of such cases as extend through the perineal body, we must say that stitches should be applied; from two to four will probably be enough. Unless antiseptic suture or silk-worm gut can be used, I prefer to use the silver wire. With a wire, armed at each end with a moderately curved needle, the stitches can be easily introduced from within outwards, and with little pain to the patient, if the operation is performed while the parts are still in a benumbed state. I have certainly seen great neglect in some cases of extensive rupture involving the sphincter and rectum. In one such case nothing was done but the introduction of a few superficial sutures; the rectum and perineal body were left to take care of themselves. The result was the patient had septicemia and peritonitis, and death ended the scene. That occurred in a lying-in institution, under the management of a man of

long and extensive experience. The best thing was not done as we now regard it. Compare that with what I saw last month at Philadelphia, in an institution under the care of so thorough and able a man as Prof. Wm. Goodell. While I was calling on him, for a brief interview, the nurse came into the office and informed him that the woman just delivered had suffered rupture of the perineum. He invited me with him to the lying-in-chamber where the case was. The patient, a stout-built, robust woman, young looking, had a rupture involving a part of the sphincter ani. Cleansing the parts thoroughly, and examining carefully, he deemed it proper to introduce two deep sutures from the tegumentary surface, and one from the mucous membrane encircling the posterior commissure. In response to the inquiry whether they usually unite, he said, they always unite. He further remarked that it was not necessary to close the vagina too closely; and directed the nurse to draw off the urine for thirty-six or forty-eight hours. He used quite a large, strongly curved needle, armed with silver wire, and made each stitch with a single sweep. How different this from the treatment, the neglect, of twenty or twenty-five years ago, or of much of the common practice of to-day. It is the importance of the *early operation* that I would emphasize at this moment.

Less than a year ago, at the American Gynecological Society at Philadelphia, the subject "Perineal Laceration, with a New Method for its Proper Repair," was presented by Dr. Thomas Addis Emmet, of New York, in which former views and operations concerning this accident were called in question. But the new views were not endorsed by many of the speakers in the discussion which followed.

An operation seems to be gaining ground at this time, in which the flap, lifted in the process of denudation, is not cut away, but is left to cover the vaginal line formed by the bringing together laterally of the denuded surfaces. This operation was described and illustrated in the "Annals of Anatomy and Surgery," in 1880; and in 1882, months afterwards, it was spoken of in the London Obstetric Society as something new there. The report may be found in the American Journal of Obstetrics report of the proceedings of said society, together with discussion of the subject.

The material used for sutures is not of so much importance as the method of their introduction, and the depth and

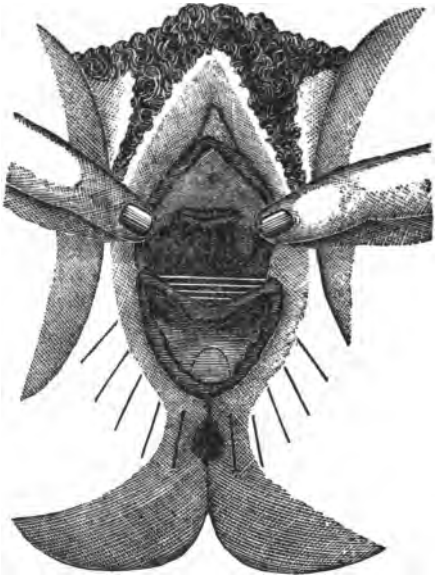
parts included in their grasp. Horse-hair seems to be growing in favor. It may be used of sufficient strength for almost any purpose by doubling. Thus far I have confined myself to the use of silver wire, except for superficial stitches; but it has some inconveniencies which the more pliable materials do not have. It is very important that all hemorrhage should be arrested, and all clots removed from between the surfaces before approximation be made. This I regard as of prime importance in all operations in which it is desired to effect union by first intention, or immediate union. We here announce nothing new. Eighteen years ago I insisted on these things, viz: arresting all hemorrhage, removing all clots, and then providing for perfect drainage in amputations of the thigh.

The secondary operation should not be performed too soon after the accident, or after a failure of the primary. In one case I allowed myself to operate, by solicitation, sooner than my judgment sanctioned, and the result was not what it should have been and would have been if postponed, though it was not an entire failure.

At one time the late Dr. Sims held a roll of silver wire on his finger, and said that was the secret of his success. I. Baker Brown's success in ovariotomy was from dropping the pedicle into the abdomen and closing the cavity; and Keith's success has been from the introduction of the drainage tube; and Emmet's reputation from repairing the lacerated cervix and the ruptured perineum; not that Sims had nothing to boast of, and no superior qualifications but the use of the silver wire; nor Baker Brown no merit in his operations but the method of ligation, cauterizing and dropping the pedicle into the abdominal cavity, which I saw him do; nor that Keith has done nothing worthy of imitation, but use the drainage tube; nor Emmet, nothing but popularize the repair of the cervix and perineum; but these *in particular*, with careful observance of the other details in *general*, have given to these men in the past a superiority and a success beyond that of their fellows. A correct principle with a wise and timely procedure, with care in all the details, not over self-confidence, will command success, rather than the supposed discovery of some new method which has probably been forgotten for decades if not centuries. Thirty years ago the pedicle, or the stump of the

pedicle, in ovariotomy was covered by detached serous membrane, the detachment having been made for the purpose before dividing the pedicle. This was done by the late Prof. R. L. Howard, of this city (Columbus, Ohio).

Thus we see repeated the old adage: "There is nothing new." The great merit in surgery is in establishing in practice that which is useful, valuable and best, rather than in discovering something supposed to be new. The former of these is my purpose in presenting this paper, viz: to enforce and emphasize a most valuable operation for the restoration of the perineum, either primarily or in a secondary operation.



[Copied from Goodell's Lessons in Gynecology.]

REMARKS ON THE ILLUSTRATION.

The sutures in the illustration are represented as being exposed over the vaginal mucous membrane. This exposing the sutures should not, as a rule, be made. It is better that most of them be concealed entirely.

THE CURE OF CATARACT

BY THE

Method of Absorption.

BY REUBEN A. VANCE, M. D., CLEVELAND.

I desire to direct attention to an operative procedure for the cure of cataract that seems to have been in great measure ignored since the recent extension of extraction methods, and the abandonment of depression and reclination. I refer to the operation for absorption of the lens. This method—confessedly the best at our command for liquid cataracts and soft cataracts—was advocated by many eminent surgeons for the cure even of senile cataract prior to the discovery of the ophthalmoscope and the general employment of anesthetics in ophthalmic surgery. Various circumstances conspired to displace this procedure from the vantage ground it then occupied. The new means of exploration attracted numerous students to the department of eye-disease, who otherwise would never have given it a moment's thought. The safe abolition of pain by anesthetics rendered the teachers of ophthalmic surgery anxious to complete the manipulative part of their operations during the patient's state of insensibility, whilst the knowledge that sight could be restored—or, at least, the surgeon's part completed—while anesthetised, brought many a patient to the operating table who otherwise would have been content to remain blind. Surgeons of reputation in this department were thus led to direct their energies to the improvement of those procedures which enabled them to remove the cataractous lens in a short time and at one operation. The

acknowledged dangers of couching led to its abandonment; the length of time required for absorption of the lens, and the slow progress from day to day, as contrasted with the brilliant results speedily attained in the successful cases of extraction, soon led the ophthalmic surgeons to ignore absorption for the removal of hard cataracts, while still employing it as the best method for the cure of liquid and soft cataracts.

The dangers of extraction are manifold, and, save in the most experienced and skillful hands, the ultimate results are disastrous in a larger proportion of cases than published statistics would seem to denote. So far as the dangers of the absorption method are concerned, when properly executed, they were always trifling, and now that alkaloids are at our command for reducing the tension of the eye, they can be ignored as not entering into the problem. There are many cases of senile cataract in which extraction is especially hazardous; these are patients far advanced in life, or those who suffer from deterioration of tissues, or are afflicted with grave organic disease. Affections of the lungs, attended by cough, diseases of the heart, liver, kidneys, or bladder, atheroma of the arteries, and diabetes are pathological conditions responsible for a large proportion of failures in operations for extraction of cataract. To individuals of a sensitive disposition the deformity of the pupil caused by excision of a section of the iris is no slight objection, even in cases of extraction that succeed. A careful investigation will show that there are many patients, in various parts of the country, who have need of an operation for the relief of lenticular opacity, yet who, from a knowledge of the casualties of extraction, prefer to remain blind rather than risk its dangers. Such individuals—as well as those in whom the ordinary operation is contra-indicated, and many who now are, in a measure, forced to submit to extraction—could be relieved without danger by the absorption method.

The objections to the operation for absorption of the cataractous lens have been three-fold: 1st. The dangers of the procedure. 2d. The skill and judgment demanded of the operator for the safe execution of the method. And 3d. The length of time required for the removal of the cataract.

(1.) The dangers of this operation were never great, and, as I have already said, are now much less than ever before,

on account of the remedies at our command for relieving intra-ocular tension. The complication most to be feared is inflammation of the iris and adjacent vascular structures, resulting in glaucomatous tension, great circumorbital pain and violent vomiting, or, more commonly, in adhesions of the iris to the lens capsule, and, occasionally, closure of the pupil.

(2.) The results obtained in this method, as well as the degree to which the complications above noted are avoided, are largely due to the skill and judgment of the surgeon. The opaque lens is retained in position by structures that are ruptured with very slight pressure, and if the surgeon does not exercise extreme care, and execute his manipulations with delicacy, the cataract will be displaced, and immediate extraction necessitated. Again: Experience alone can teach the surgeon the extent to which the capsule should be opened in an individual case in order to secure the most rapid absorption with the least degree of inflammation.

(3.) The danger of this method is slight, and the skill necessary for its safe execution speedily attained by practice, consequently no well-founded objection can be based upon the calamities that follow in its wake, when improperly done, or the exceptional dexterity demanded for its performance. It is upon the length of time required for the removal of the opaque lens that opponents of the absorption method have founded their opposition. No one familiar with the speed with which extraction can be accomplished, and aware of the time demanded by nature for absorption, can do aught else than award precedence to the former, so far as regards mere rapidity of execution. It is only when we contrast the comparative safety of the one, with the decided dangers of the other; the cases in which the one can be employed with little risk, and the other only with great hazard, that we fully appreciate the slight importance, one way or another, of a few weeks' time.

For the best account of this procedure, and excellent instruments with which to accomplish it, reference must be made to the writings and devices of the great leader of the Irish Ophthalmic School in the pre-ophthalmoscopic era—to Dr. Jacob, of Dublin. This eminent surgeon, whose name is indissolubly connected with the anatomy of the retina and the pathology of certain lesions of the face,

labored assiduously to bring the absorption method into favor. He employed a fine sewing needle, the end of which was bent and sharpened. This needle was mounted in a cedar handle, so that not more than half an inch projected. With this instrument he attained to such results that naught but the peculiar influences already alluded to—the discovery of anesthesia, the invention of the ophthalmoscope, the increased afflux of patients to ophthalmic clinics, and the demand for rapidity in the execution of cataract operation, and, I may also say, the creation of a special class of practitioners, societies and journals, by which the mechanical and local aspect of eye affections were forced into undue prominence, to the exclusion of those principles upon which all surgical treatment should be based—could ever have obscured its rare merits in certain cases of opacity of the lens.

For the successful performance of this operation in cases of senile or hard cataract, no complicated apparatus is required—no special instrument demanded. A fine, straight sewing needle, of proper temper, mounted in a slight handle, will serve to pierce the cornea and open the lenticular capsule as readily, and in some respects better, than the most elaborate device of the surgical cutler. It is the hand and brain of the surgeon that achieve success—not the instrument he employs. With a needle of this character, the pupil being dilated with a mydriatic, the capsule can be punctured at two closely adjacent points and lacerated between; this suffices for the first step in the absorption process. The employment of atropine or homatropine keeps the iris out of danger, and permits the fluids of the eye to play their part in the removal of the exposed cataractous material. After an interval of days, or weeks, according to the reaction developed in the eye, the next step can be taken. The needle is again carried through the cornea to the lens, and the capsule torn in a direction at right angles to the original laceration, and the same after-treatment adopted as before. Circumstances regulate the rapidity with which this procedure is repeated, and the personal peculiarities of each patient determine the number of times the capsule must be punctured before the cataract will be absorbed. Occasionally the opaque capsule will remain in the pupillary area after the lens substance has disappeared; the needle is then introduced and the membrane swept

away in the manner usual in such cases. The pain attendant upon the various steps of this method is slight; nevertheless there is nothing to contra-indicate the use of anesthetics, and I employ ether in every case when the patient desires it.

This operation cannot be ranked as a rival of extraction; it has a field all its own. Devised by Percival Pott, and practiced by the elder Hey, of Leeds, its merits are as great as its origin is illustrious. In the language of one of the most distinguished ophthalmic surgeons of the present day —Mr. Haynes Wilton, of London—

"The operation for solution is certainly the safest of all for the removal of cataract, as regards any immediate danger to the eye, and from none is a better sight to be got. It is one of the most scientific and beautiful operations in surgery. Not any damages so little." * * *

And again:

"This old English operation is, at this period, apt to be neglected, because not sufficiently taught, in consequence of the love of novelty, the force of fashion, and enthusiastic admiration of some inferior foreign methods."

NECESSITY FOR AN EARLY RESORT

TO THE

Radical Operation in Empyema.

BY S. F. FORBES, M. D., TOLEDO.

In the hope that the general practitioner may be stimulated in the discharge of a duty, now too often neglected, and with no expectation of instructing the many accomplished surgeons who are members of this Society, this paper is presented.

Operative procedures for the removal and cure of effusions within the chest have been long known and adopted. Hippocrates, it is said, used a red-hot iron with which to penetrate the chest for the purpose of letting out the encased fluids.

Notwithstanding centuries have passed since operative procedure for the evacuation of such effusions has been known, nevertheless surgeons throughout the world were slow in employing this method of treatment, until an American surgeon, Dr. Henry I. Bowditch, of Boston, Mass., came forward, a little more than twenty years ago, with a report of one hundred and fifty cases treated by his method of aspiration, with such favorable results as to attract universal attention. Immediately American, then British and French, and lastly German, surgeons quite generally adopted some method of aspiration in chest effusions, and now, at this day, any surgeon who would not, at the proper time, resort to aspiration for the removal of effusions within the plural sac would be justly considered remiss in duty.

But it is not of operations for the removal of the ordinary serous or fibro-serous fluids of the pleura that I would speak, but of what is known as the "radical operation" for the cure of empyema—effusion of pus in the pleural sac.

As is well known, the condition of this membrane, and its anatomical changes, differ widely in cases where the effusion is serous or purulent. For the former condition, aspiration is usually successful in seventy-five to eighty per cent. after one operation, and over ninety per cent. in repeatep tappings. Whereas, in "purulent effusions puncture or aspiration is very rarely followed by recovery." The foregoing figures were given me by the venerable Bowditch himself, so far as relates to the serous effusions, while the remark in relation to the purulent effusions is an extract from Ziemssen.

In connection with that subject, I desire to report two cases treated by myself, in one of which puncture was made, death following in a few months, and in the other a modification of the radical operation was performed with speedy recovery.

November 24, 1874. Called to see Mrs. F., a middle aged lady, having symptoms of acute pleurisy. Treated her according to usual methods, and some improvement in symptoms followed, but no complete recovery. Even after some months had elapsed, in March following, there were evident signs of effusion in the right chest (which was the affected side), and during April the symptoms were so urgent that puncture of the chest was proposed.

April 19th, in the presence of several physicians, a common aspirator needle was introduced and a fluid obtained, which was so slow in coming away that the needle was removed and a large sized trocar inserted through which laudable pus flowed in a full, bold stream, until nearly three quarts escaped, much to the relief of the patient. The wound was then closed for a few days, when it was discovered that there was a leaking of the same character of fluid as that removed by the operation. From this time on for two months, every expedient then known to the writer was used to arrest the discharge and cure the patient. A drainage tube was inserted with the outer end sunk in a basin of water and a sort of syphon established. Afterward a double catheter was introduced, and the cavity was washed out daily as well as might be, first with water and

afterwards with medicated washes, such as Condy's fluid, bichloride of mercury and permanganate of potash. But the washings were imperfectly done through the small openings. The writer was exceedingly fortunate in meeting Dr. Bowditch during the month of May of that year, at the meeting of the American Medical Association, and was additionally fortified by his advice and counsel in the management of the case. But all to no purpose. The suppuration continued, and the patient gradually sank and died of exhaustion, June 15, 1875, during the temporary absence of myself from the city. The medical friend in charge of my business was unable to get a post mortem, but did manage to get at the cadaver, surreptitiously, and hastily opened the chest; but his examination was so imperfect and hasty that I gathered only this, that the lung (the right) was collapsed and nearly gone, and that the pleural walls were extensively ulcerated.

So much for the old way of treating empyema by aspiration or puncture, which, as before stated, is rarely followed by recovery.

Although, according to Ziemssen, the sharper distinction as to the treatment of pleuritic effusions, as to whether they be fibro-serous or purulent, and the conviction that in the former cases removal by aspiration is usually sufficient, while in the latter it is almost always only the radical operation that leads to cure, first gained footing in France as early as 1857, and became more widely known there in a report to the "Society Medical" of the Hospital of Paris in 1864, and although a single successful case of what might be termed the radical operation was reported by Dr. Albert G. Walter, of Pittsburg, Penn., as early as December, 1857, nevertheless the "radical operation" for the cure of empyema, as it is called, appears not to have come into general notice until about the beginning of the last decade; or at least the first notice in any standard work that I have found appears in Ziemssen's, Vol. IV., where Fraentzel, in speaking of it, says: "I first became acquainted with the details of this method in 1873, when in conjunction with Traube and Wilms I treated the case of a girl thirteen years of age, in this way, with eminent success." From that time to 1876, three years, he had treated eleven cases. Complete recovery ensued in five of these, five others were suffering from other troubles than the pleural affections, four

of whom died from these affections while the eleventh had been operated upon only two weeks before the paper was written, but promised complete recovery.*

Moutard-Martin had, up to 1876, performed the operation, but in a different way, in seventeen cases with twelve recoveries and five deaths, three of which seem to have died from complication of diseases rather than from empyema alone. The total of the two sets of cases gives twenty-eight with nineteen recoveries, and of the nine fatal cases seem to have fallen as much from other disease as from the pleural disease. These results are both gratifying and astonishing, especially when compared with the plan of puncture or aspiration, which is seldom followed by cure.

Of the operation, I wish to say that I will speak more at length further on, merely premising now, very briefly, that it consists in opening the pleural sac freely by a long incision between the ribs under the carbolic spray and then washing out the pleural sac perfectly, closing the wound, or dressing with drainage tubes of either metal or rubber, under the spray, and covered by antiseptic gauze, rubber bandage, etc. In the one successful case of my own, the operation was different from that described by Ziemssen, for reasons which will appear further on.

In March, 1880, I was called in consultation with a physician of a city near Toledo, to see H. B., a lad about fourteen years of age, suffering from pleuritic disease. There was fever, pain, loss of appetite, difficulty of breathing, exhaustion, etc. The lad had been sick some three or four months, and his physician had already twice aspirated him, removing at each operation a large amount of pus. No operation was made at this visit, as the breathing seemed somewhat better than for a few days previous, and the case was put upon a course of treatment and more time given. During the week or two following, however, the suffering became so great that aspiration was again resorted to, being the third or fourth time, and as large an amount of pus obtained as before, with but temporary benefit. In a few days the urgent symptoms again returned, and it was evident that some other measures must be adopted or death would speedily follow. Accordingly, about the first of May, the lad was brought from his home six miles distant to the

* Vol. 4, p. 722.

city of Perrysburg, a house was rented and his mother and a brother and sister duly installed for the care of the patient. A few days were spent in an effort to build up the health of the lad, whose condition had become so alarming that death seemed imminent at any time. May 4th was set for the operation, and with the assistance of Drs. Rheinfrank and Bowers, of Perrysburg, it was begun with not a few misgivings as to its result, not only distant but immediate. The patient was carefully etherized, and an incision made between the fifth and sixth ribs, about four inches long and about midway between the spine and sternum on the left side. Carefully watching for bleeding vessels, none of any account however being seen, the pleura-costalis was soon reached (as the patient was very thin), and a small incision was made in this membrane. First a grooved director, and afterwards the tip of the forefinger, was inserted, when the incision in the pleura was enlarged to the extent of the external wound. Not a large amount of pus was obtained, perhaps not over six or eight ounces, not one-fourth as much as at any of the aspirations, so that my medical brethren began to feel doubt about my being in the pleural sac. I thereupon introduced three fingers into the wound, prying apart the ribs so that the lung could be seen and felt. Its surface, the pleura pulmonalis, was rugous and ulcerated, and the lung was perhaps not over one-third of its normal size. Very imperfect efforts were made towards washing out this cavity, as it was said the patient was in such a state that his death at any moment might be expected. But the carbolized spray was used most bountifully, covering the hands, knives and wound, and filling the pleural sac until it run out again. I should say that the spray operator was a clergyman, who seemed to think he could keep life in the little patient by vigorously pumping him full of carbolized air and water. While this vehement spraying was going on, the edges of the external wound were firmly brought together and a few deep stitches taken and the wound closed, as we intended, both water and air tight. Over the wound, still under spray, were placed many layers of carbolized gauze, and over these some carbolized felt, and over all a delicate and abundant rubber bandage. The remainder of the story of this case is quickly told. The patient for twenty-four hours had a hard struggle for life, but conquered, and from that on his recovery was rapid and

perfect. For one or two days there was a little reaction or surgical fever, and then every bad symptom vanished. The cough, pain and fever left, the appetite returned, and in two weeks he was about his room, and in four weeks he was at play about the town. He has since continued to enjoy perfect health. Nothing whatever was done with the wound but to leave it securely within its carbolized envelopes. In about a week the coverings were carefully removed under spray when the wound was found quite well agglutinated and without any suppuration. Clean dressings were applied again as before, which were removed in a few days and the stitches taken out, and all further attention to the wound practically ended, as it was deemed perfectly healed.

Such is the result in two cases of empyema; the first treated by puncture, followed by death, the other by a most free incision and carbolization (if I may coin a word), with speedy and complete recovery. It may be held that the cases are not parallel in this; that in the first the patient was middle aged, while in the second the patient was a child, and was therefore more likely to recover from such affections. While this is true, it is also true that the first case was in an otherwise healthy woman, well nourished and cared for, and in the Sisters of Charity Hospital, surrounded by every comfort, while the other was in a poorly nourished, scrofulous-looking lad, son of what is called a wooden shoe Dutchman, from the wilds of the Black Swamp. So that upon this point I think they are quite evenly balanced. The operation I have described is not what is known as the radical operation, as laid down in Ziemssen, but is much simpler, being divested of much of the rubbish which attends operations in Continental Europe, but it is possible that it might not generally be as successful as the original operations are. Ziemssen, after the incision is made in the pleura, introduces two of Nelaton's catheters downwards and backwards towards the spine, through one of which is allowed to flow water of 100° to 103° F., while it is drawn out by a syringe adjusted to the other. This process is kept up until the water comes away clear, all the while a carbolic spray, of strength of one per cent., is thrown over the part. The catheters are now removed, and a flattened silver canula, having a lid, introduced between the ribs and held in place by a silver

plate secured to the chest by adhesive straps; the lid is now closed, and the canula and wound covered by carbolized gauze, secured by proper bandages. The wound should be redressed in a like manner twice daily, and after two days a solution of common salt, two or three grains to the ounce, should follow the washing occasionally; or as the case goes on, this may be laid aside, and a solution of permanganate of potash, two grains to the ounce, or carbolic acid, two grains to the ounce, substituted. Occasionally the canula should be removed, cleaned and reinserted, until granulation of the cavity approaches the external opening, when it should be removed and the wound covered with carbolized gauze. Of course, all these dressings, washing, cleansing canula, &c., should take place under the spray. Some surgeons use stout rubber tubing secured to the chest by threads fastened to adhesive strips, in place of the silver canula, through which to introduce the catheters.

Such is the radical operation for the cure of empyema, which has already accomplished much, and is destined, beyond a doubt, to become a life saving operation.

The case reported by myself appears to have healed differently from those spoken of by Ziemssen; namely, "by adhesion, while in his cases, granulation was what was sought for, and obtained. One disadvantage of this latter process is the occurrence of thoracic fistula, several cases of which occurred among those reported by Mr. Martin."

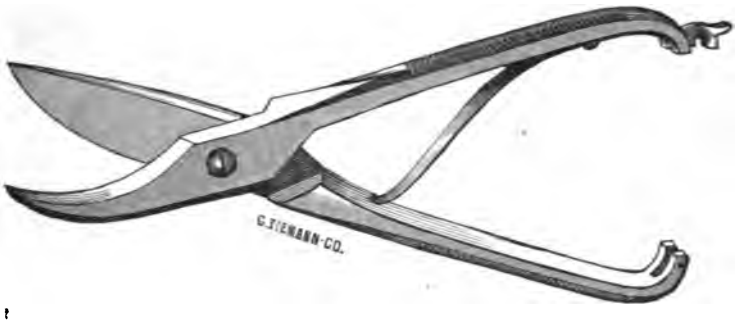
Of course I am not suffieiently presumptuous to claim that the single case reported by me, and which apparently healed by adhesion, was the result of the vigorous spraying (which was with a solution much stronger than that used by Ziemssen, I think, about five per cent.), but I desire to say this, however, that it has been claimed by some writers that after free cleansing of its pus, the pleural membrane may be changed in character, on account of a vigorous spraying of a strong solution of carbolic acid, from a pus secreting membrane to a serum secreting one, and hence quite readily cured. Be that as it may, I would not trust to that method alone (unless as in my case I was compelled to), until further cases are reported justifying such a course. It should not be understood that this operation can be made as easily and glibly as we talk about it, that there are no obstacles in the way. Quite the con-

trary. In some pleural sacs, extensive adhesions will be found, in character like a web or membrane, which traverse the chest, dividing it into chambers, each of which should be cleaned with scrupulous care.

One of the most certain efforts toward insuring success in this operation is a free incision. The surgeon should be sure that it is large enough to perfectly cleanse the sac at the first dressing, at all events. In throwing in fluids great care should be used, especially in the left chest, that the stream be not directed upon the heart lest serious results follow. If in doubt about whether the sac is perfectly cleansed, it is recommended that the outflow catheter be adjusted to an aspirator, or other strong exhauster, a syringe for instance, so that all the contents may be with certainty removed. Should there be any difficulty in introducing the canula, it is recommended that exsection or trephining of a rib might properly be done.

As a case goes forward towards recovery, it is said the occurrence of renewed pain, fever, or other symptoms, which had more or less subsided, may be taken as indicating the necessity of a more thorough and repeated cleansing. And this leads me to say, that in looking over the literature of this operation, it seems quite the fashion to remove a section of one or more ribs at once, as the operation proceeds. Especially does this seem to have been the practice in traumatic and long standing cases, and where, as in some cases, there exists a thoracic fistula. This procedure complicates and lengthens the operation somewhat, but only further requires a Hey's saw, bone forceps, a trephine and care in enucleating the intercostal artery.

I should further add that Dr. J. F. Baldwin, of Columbus, Ohio, in an article on this subject, published in the *Columbus Medical Journal*, for February, 1884, suggests the use of the *costatome*, an instrument found in the more complete post-mortem cases, as best suited for dividing the ribs in this operation. Dr. Baldwin reports a case in which he used the *costatome* very satisfactorily. A cut of the instrument is herewith inserted, being kindly loaned by Tiemann & Co., for the purpose.



The manner of its use will be readily understood by a glance at the instrument.

Prof. Richardson, of New Orleans, in an elaborate paper read before the American Medical Association, in 1883, claims that exsection of the ribs by the saw, or trephine, had been practiced it New Orleans for many years, with good results, in empyema. But all of his cases were of traumatic pleuritis, and most, if not all (if I recollect aright), had fistula at the time of the operation.

Dr. Dandridge, of Cincinnati, and Dr. Carter, of Illinois, report each a case of exsection of a portion of a rib, in this trouble, with favorable results, but both were also traumatic cases. On the other hand, Dr. Dillingham, late House Physician of St. Francis Hospital, N. Y., reports a cure occurring in 1881, 26 years old, and Dr. Edebahls, also of New York, a case in the same year (2½ years old), both of which recovered without the removal of any rib, from free incision and washing and draining the cavity. Dr. Baldwin, of Columbus, reports three cases, all successful, in one of which exsection of the rib was practiced. These are all the cases that have come under my notice, in addition to those before mentioned. I am particular in this matter, for the reason that this question of the exsection of the rib is a most important one, and one the surgeon should have settled in his mind before the commencement of the operation, if he can.

It is justly claimed that in the removal of one or more ribs (portions I mean), a better access can be had to the sac, and its cleansing more fully performed. Furthermore, this loss of rib, or ribs, allows a more extensive collapse of the chest, as the case goes on, a process necessary in

long standing cases (especially traumatic), and where extensive adhesions bind the lung permanently down. On the contrary, the removal of the ribs complicates the operation, cripples the future use of the chest, and should always be avoided if possible.

In our present imperfect knowledge and experience, no general rule can be laid down in relation to this question. But this course would perhaps be best followed until future experience shall teach a more reliable one, viz.: In all long-standing traumatic cases, especially where there is a fistula, in long-standing idiopathic cases, especially in elderly persons, and where extensive adhesions are suspected, then undoubtedly a portion of one or more ribs should at once be removed. But in recent idiopathic cases, exsection of the ribs will not generally be required at a first operation. If, however, it is found that recovery is doubtful, or so tardy as to imperil life, then a resection of the ribs may take place at any proper date after the first operation. To these general conclusions must be added the judgment of the surgeon, in each and every case. Beyond a doubt, not one of us will ever find any two cases exactly alike, and to each we must bring the well-known principles of surgery, and our own best and most conscientious judgments.

Being an advocate of free incision, with or without ex section of ribs, as may be deemed best, I am here to insist merely upon the radical operation in all proper cases. As to the time when, and place where, to operate, little need be said. The time comes, undoubtedly, where, after two or three tappings, pus continues to form, and the health is failing. It may come much sooner than that, of which the surgeon must judge in each case.

Of the proper place for operation, surgeons differ. Bowditch's rule of the proper place to aspirate in hydrothorax, viz.: one and one-half inches above the lowest point where respiratory murmur may be heard in the sound lung, will rarely be proper in empyema, and for obvious reasons. The most common place, as far as I can learn, is between the fifth and sixth ribs, and about midway between the spine and sternum. By placing the patient well on the affected side, the washing out can quite readily be effected. Sometimes the aspirator finds pus in one locality of the chest only, ensaculated, as it were. Of course the incision

should be over such sac. Occasionally, too, there will be more than one sac. Where they do not freely communicate, their partition walls should be freely divided, that they may all be fully washed out.

As paracentesis has been, and is now, acknowledged to be necessary in all proper cases, so is the free incision and drainage necessary in nearly every case of empyema. The responsibility of doing the proper thing in these cases is upon us, and we cannot ignore it without being remiss in our duty, and becoming justly censurable. That proper thing is the radical operation, just as soon as the proper moment arrives. Delay is so often fatal, before it is convenient, that I warn you against it.

In my own county, this spring, a young girl died who doubtless might be alive if she had been operated on at the proper time. In the neighboring county of Seneca, a similar result occurred to a middle-aged and otherwise heathy man, because his physician, by his own confession to me, put off the day of operation until it was too late. In the belief that many such cases are occurring all over our state, I feel impelled to say again, do not neglect your duty in these cases of empyema.

The recent discovery of administering anesthetics by the rectal method, will greatly reduce our anxiety in this operation, and doubtless increase the number of favorable cases.

If these facts and this appeal shall stimulate you, Gentlemen, to make this operation whenever occasion offers, my poor efforts will not only be more than rewarded, but suffering humanity will rise up and call you blessed.

OBITUARIES.

DR. ANDREW C. McLAUGHLIN.

Dr. Andrew C. McLaughlin died at his home in Tremont, Clarke county, Ohio, on the 12th day of October, 1882, full of years and of honors. Dr. McLaughlin was of Scotch parentage, and was born in Concord township, Champaign county, Ohio, August 1st, 1809. He received a good common school education, and at 22 years of age commenced his business career as school teacher. Soon after this he became a student of medicine under Dr. Richard W. Hunt, of Springfield, Ohio. He commenced the practice of his profession April 2nd, 1836, at Clarksburg, now Tremont City, Clarke county, Ohio, and was a graduate of Starling Medical College, of Columbus. He was for many years a member of the Clarke County Medical Society, of which he was President in 1874 and 1875. He was also member of the Central Ohio Medical Association, a permanent member of the American Medical Association, and Medical Examiner of several prominent Life Insurance Companies.

Dr. McLaughlin kept abreast of the times in medical science, as may well be imagined when we say that he was in the habit of taking many of the principal medical journals of Europe and America, besides attending regularly, for years, nearly all the annual meetings of the American Medical Association, the Ohio State Medical Society, as well as the monthly and other stated meetings of the Central Ohio Medical Association, and Clarke County Medical Society.

Having been for forty years engaged in a laborious practice, he retired on an ample competency, and had lately been enjoying, in a quiet, peaceful manner, the fruits of a well-spent, honored life.

He maintained not only a high position in his profession, but as a citizen as well.

Dr. McLaughlin was strictly temperate in all his habits, using neither strong drinks nor tobacco, and his life was peculiarly exempt from corrosive care or anxiety. He was a man of commanding personal presence, having a remarkably intelligent looking countenance, and a body six feet one inch in height, and weighing about 350 pounds. Thus, with a sound mind in a sound body, he was a power for good in the community in which he lived. His highest aim was to do right and trust in God. Dr. McLaughlin married August 28, 1838, Eliza Jane, only daughter of John and Elizabeth Beamer, and had one son, who died in infancy. He left a widow and a large circle of most ardent friends to mourn the irreparable loss.

DR. HIRAM SENSEMAN.

Dr. Hiram Senseman died quite suddenly of heart disease, Friday, May 25, 1883, at Tremont City, Clarke county, Ohio, where he had been established in a large medical practice for many years. He was born in Lancaster county, Pennsylvania, May 10th, 1826, and consequently was aged 57 years at the time of his death. He studied medicine with Dr. P. N. Long, of Mechanicsburg, Penn., and continued with him four years, during which time he attended two courses of lectures at Jefferson Medical College, Philadelphia, where he graduated in March, 1849. Dr. Senseman commenced the practice of his profession at Plainfield, Cumberland county, Penn., where he continued two years and a half, then at Hagerstown, and in 1853 started for the West. After practicing a few years in Springfield, Ohio, he located in Tremont, where he remained in the practice till the time of his death. He was married to Mrs. Mary A. Richardson, in November, 1854, who remains as his bereaved widow.

Dr. Senseman was a regular attendant upon the meetings, not only of the Clarke County Medical Society, of which he was an honored member, but also

upon the meetings of the Ohio State Medical Society and American Medical Association. He, in company with his old friend, Dr. McLaughlin, also recently deceased, and their wives, seldom failed to visit the State and National Anniversary Meetings, wherever held, East, West, North or South. Dr. Senseman was an industrious student, as well as practitioner of medicine, and his death will make a painful vacancy in the ranks of our profession, which will be specially felt in the immediate neighborhood of where he lived.

DR. JOHN A. McFARLAND.

We are called upon to convey to your worthy body the sad intelligence of the death of our aged brother, John Alexander McFarland, M. D., who departed this life the 1st day of June, 1883.

It becomes us to remember with his demise, some of his qualities, marks of generosity and fidelity that are so prominent along his pathway; that engrafted him in the hearts and memories of his many associates in the profession, and among the laity with whom he commingled, for whom he served his time, energy and talent.

Dr. John A. McFarland was born in Waynesboro, Franklin county, Penn., the 10th day of June, 1811. His parents were from the northern part of Ireland. The Doctor's early life was spent in acquiring an education that so well fitted and adapted him for the profession of his choice. Completing his medical education, and graduating at the Jefferson Medical College in the year 1837, he began the practical life in medicine in the 26th year of his age, in the village of Tiffin, Seneca county, Ohio, where he spent his life, serving faithfully the people with words of cheer and consolation, as well as with that nobler part that constitutes the true physician.

He was kind, amiable, patient, and punctual, liberal in his views, yet firm in his convictions of right in professional and christian character. An able counselor, always having a kindly feeling towards the

young practitioner, and ready to furnish to his requests from his well selected stock in store, gathered from years of experience with careful observation.

Approachable by the young practitioner with a feeling of confidence that in him he had a friend as well as a counselor. He passed through many scenes incident to the physician, one of which was the epidemic of cholera that swept over the land in 1854.

His labors continued until, and even during the day preceding his death. He died with the full armor on, living out more than the allotted time to man, of three, score and ten, being about 72 years of age at the time of his death.

A. B. HOVEY,
S. U. HECKERMAN,
H. B. GIBBON,
Committee of Seneca Co. Med. Soc.

DR. JOHN COLEMAN HUBBARD.

Dr. J. C. Hubbard was born July 22, 1820, in Trenton, Oneida county, N. Y., and at the age of thirteen came, with his parents, to Ashtabula, where he resided the remainder of his life. He commenced the study of medicine with Dr. Farrington, of that place, attended lectures at Willoughby, O., and graduated with honor at the College of Physicians and Surgeons, of New York. During the winter of 1875-76 he studied at Guy's Hospital, London, and later spent a winter at the University of Pennsylvania. He died June 5, 1883, while attending the meeting of the American Medical Association, in Cleveland, O., at the residence of his host, Dr. G. C. E. Weber, of that city. He had complained of only feeling a little tired in the morning, and was indulging in an animated after-dinner conversation, when he suddenly ceased speaking, his head dropped, and he soon died.

Dr. Hubbard was an untiring student, an able writer, an active, efficient member of the Ohio State Medical Society, and of the Ashtabula County Medical Society, corresponding member of Boston Gynecological Society, and was deserved honored by the profession in many ways. He was intellectually

great, socially kind, generous, refined, noble ; a friend of the poor, a father in the profession. He nobly filled an exalted place, and leaves a wife and innumerable warm friends to mourn his sudden and unexpected loss.

H. N. KINNEAR,
Sec'y A. C. M. S.

DR. JOHN DAVIS.

Dr. John Davis, the subject of this notice, was born in Leesburg, London county, Virginia, August 30, 1818. He came to Columbiana county, Ohio, with his parents in 1827, and removed with them to Marion county in 1830. He received an academic education at the Marion Academy. He studied medicine and attended his first course of lectures at Willoughby, Ohio, and afterward graduated at Starling Medical College. Dr. Davis came to Dayton in 1850, and began the practice of his profession among a strange people, but he possessed an iron will and a determined purpose to succeed, which triumphed over all obstacles, and he soon was in possession of a remunerative practice, which he held up to the time of his death, June 10, 1883. Dr. Davis, for a number of years past, had been honored by a position on one or other of the important committees of this Society, and in his death it lost a member who took a lively interest in its deliberations, and a large clientele their family physician.

D. W. GREENE,
Sec'y Montgomery Co. Med. Society.

DR. N. H. SIDWELL.

The medical profession of this county was startled on the morning of June 13, 1883, by the said intelligence that Dr. Nathan H. Sidwell was dead. The night before he was present at a public meeting, apparently in his usual health. On the morning of his death, his wife discovered him in an unconscious condition; medical aid was summoned and he was

found to be the victim of cerebral hemorrhage, dying in a few honrs.

Dr. Sidwell was a native of Georgetown, Ohio, where he was born October 18, 1840. He read medicine in his native village and subsequently graduated at the Miami Medical College, of Cincinnati. He served as assistant surgeon during the war; afterwards practicing for a number of years in Warren, Hamilton and other counties, he finally located in Wilmington, Clinton county, in 1872, where he remained until his death.

Dr. Sidwell was a man of many excellent traits. He was a model of industry and honesty. No one doubted his integrity. His kindness was immeasurable. He was obliging, even to a fault. He was genial everywhere. He was remarkable for his earnestness and zeal. What he did, he did with his might. He was an earnest, conscientious and faithful practitioner. His devotion to his profession offered an example worthy of the highest emulation. He continued in active practice up to almost the hour of his death, dying honored, beloved and mourned by all who knew him.

D. B. MORY, JR, M. D.

LOVELAND, June 26, 1883.

Having learned with profound regret of the death of our fellow member, Dr. N. H. Sidwell, of Wilmington, Ohio, it is with heavy hearts that we tender this expression of our sincere sorrow at this sad termination of a useful career, and bear testimony, though feebly, to the worth of our beloved friend and noble confrere; and

WHEREAS, Dr. N. H. Sidwell occupied the honorable and trustworthy positions of Secretary of the Clinton County and Miami Valley Medical Societies, and of the Ohio State Medical Society, and by reason of his faithful discharge of the many arduous duties devolving upon him by reason of the positions held, he had endeared himself, both personally and professionally, to a very large number of our profession; therefore be it

Resolved, That with intense regret we bow in humble submission to this mysterious Providence, which snatches our Brother from our midst, in the full flush of manhood's prime, quenching hopes, and ending a bright career.

Resolved, That in the death of Dr. Sidwell, the medical profession mourns the loss of a member of whom it were impossible to speak save in terms of the warmest eulogy; a medical scholar, thoroughly instructed in its literature and science, and devoted to

its preservation and its purity; a true friend of the young practioner, and the ever faithful counselor of his peers.

Resolved, That the community in which he lived has thus been deprived of a Christian gentleman, and society of one of its truest and noblest safe-guards; an active and learned physician; skillful and beloved, and devoting the best efforts of a well balanced mind to the alleviation of suffering humanity.

Resolved, That his family lose in him a most affectionate husband, an indulgent father, one whose upright life, unblemished moral character, and straightforward Christian example, will ever cause his name and memory to be cherished in far distant years.

Resolved, That we hereby tender to the family and friends, to his many bereft and appreciative patrons, and to the profession of his County, District and State, our heart-felt sympathy and condolence.

Resolved, That the Secretary be requested to spread a copy of these resolutions on the minutes of this Society, furnish a copy of these resolutions to the family of the deceased, and to each of the papers of Clinton and Warren counties for publication.

Respectfully submitted,

F. H. DARBY,
E. B. STEVENS,
W. W. SHEPPARD.

DR. ALBERT G. LELAND.

Dr. A. G. Leland was born in Huntsburgh, Ohio, in 1843, where he lived until he commenced the study of medicine with Dr. Laisy, of Cleveland. He graduated at the Cleveland Medical College at the age of twenty-one, being assistant Demonstrator of Anatomy during his second term. After graduating he lectured on Chemistry a short time, and soon married and commenced practice in Trumbull (in 1864). He was unsuccessful at first, but a good amount of perseverance did not fail to bring him a good business eventually. He died of diphtheria, contracted while attending a number of virulent cases of that dreaded disease, December 1, 1883.

Dr. Leland won the confidence and good will of a large clientele by his professional skill and geniality, and leaves a place in the community (Trumbull) not easy to be filled.

H. N. KINNEAR,
Sec'y A. C. M. S.

DR. BENJAMIN TAPPAN.

Dr. Benjamin Tappan, the well-known and eminent physician and surgeon, died at his residence in Steubenville, Ohio, January 17th, 1884, aged 71 years. He was born in the above named city, April 1st, 1812, and was the son of Judge Tappan. In early life he attended school at Rand Hill, Mass., and was a pupil of George Bancroft, the eminent historian. At the age of 19 he was engaged in the Steubenville chemical works, where he first developed his talent for medicine. He attended the University of Pennsylvania, where he graduated with high honors. He was also a student of Dr. Bates, of Philadelphia, Penn.

After completing his course in medicine in this country, he entered the "University Francaise," Paris, where, after one year, he had charge of the University Hospital. Among his classmates in the French University, were the late Dr. Jewett, of Dayton, and the late Prof. Avery, of Cincinnati.

Shortly after his return to his native city, he was appointed Minister to Ecuador, S. A., by President Van Buren. He was particularly well-fitted for this position, being one of the best Spanish scholars in the country.

He was married three times. His first wife was Miss Oella Stanton, a sister of Edwin M. Stanton, Secretary of War under President Lincoln, to whom he had five children. His second wife, Helen Rowan, died shortly after marriage, without issue. His third and surviving wife was Nancy Lowther; to her he had ten children.

During the war he was appointed Surgeon of the 8th Ohio, being among the first surgeons appointed.

He was offered Professorships in several colleges, at different times, but declined upon the ground that a professorship was too inactive.

As a physician he was well-known throughout the State. He was a man of learning, perhaps one of the best scholars in the profession. The prominence of his father, and his own ability, brought him in contact with the most prominent men of our country, which gave him a wide reputation. Although gruff in manner and rough in dress, when in his prime he stood at the very head of the medical profession in the State of Ohio.

LIST OF MEMBERS

OF THE

Ohio State Medical Society,

WITH POST OFFICE ADDRESS AND DATE OF ADMISSION.

NAME.	P. O. ADDRESS.	ADMITTED.
Alcorn, A. W.	Ravenna	1870
Allen, D. B	West Liberty	1865
Allen, Dudley	Oberlin	1870
Allen, Harlan P.	Columbus	1884
Anderson, James	Salem	1884
Anderson, W. G	Columbus	1884
Asbury, T. B.	Jerome	1878
Arms, Chas. C.	Cleveland	1880
Axline, C	Fultonham	1884
Axline, J. D	Shawnee	1882
Ayres, J. H	Urbana	1876
Ayres, S. C	Cincinnati	1877
Baker, George G	Akron	1884
Baker, W. O.	Louisville	1882
Baldwin, J. F	Columbus	1875
Ballinger, J. B.	Versailles	1880
Ballinger, Wm. J	Plain City	1864
Banning, J. C	Round Head	1876
Barb, Foster W.	Burgh Hill	1884
Barnes, W. T	Fredricksburg	1879
Barnhill, J. W	Columbus	1884
Barrere, D. M.	New Carlisle	1884
Bartlett, E. P.	Marietta	1874
Barton, T. J	Zanesville	1881
Battles, W. S.	Shreve	1858
Bauer, M. M	Lake	1884
Beach, A. J	Belleville	1863
Beach, A. P.	Seville	1880

NAME.	P. O. ADDRESS.	ADMITTED.
Beach, J. N	West Jefferson	1854
Beach, T. D	Catawba	1884
Beach, W. M	London	1879
Beardsley, C. E	Ottawa	1869
Beck, J. S	Dayton	1879
Beers, A. M	Newcomerstown	1882
Belden, A. C	Akron	1878
Berlin, C	Wapakoneta	1868
Besse, H	Delaware	1868
Beverly, P. V	Columbus	1881
Bevington, J. S	Freedom	1878
Bing, J. P	Portsmouth	1851
Bishop, S. P	Delta	1870
Blair, James F	Marshall	1884
Blake, W. H	Shadeville	1878
Bland, Jerome	Poplar	1876
Bleile, A. M	Columbus	1882
Blizzard, S. R	Bellefontaine	1860
Bœrstler, G. W	Lancaster	1870
Bowen, A. H	Lincoln, Neb	1878
Boylan, A	Milford Centre	1878
Brainerd, H. C	Cleveland	1870
Bramble, D. D	Cincinnati	1870
Brannan, T. H	Canal Dover	1884
Brayton, F. W	Carey	1881
Bricker, W. R	Shelby	1848
Brinkerhoff, D. H	Fremont	1853
Brison, H. C	Millersport	1884
Brockett, A. J	Bristolville	1874
Brown, H. M	Williamsburg	1882
Brook, G. W	Ellsworth	1858
Brundage, A. H	Xenia	1878
Brush, E. C	Zanesville	1878
Buckner, J. H	Cincinnati	1863
Buechner, W. L	Youngstown	1879
Buffett, Lewis	Cleveland	1880
Bunce, Wm	Oberlin	1864
Bunn, J. W	West Union	1882
Burton, E. D	Collamer	1880
Butler, Geo. O	Cleveland	1870
Butler, G. W	Columbus	1869
Caldwell, W. W	Hamilton	1874

NAME.	P. O. ADDRESS.	ADMITTED.
Carmichael, W. A	Loveland	1871
Carpenter, Julia W	Cincinnati	1879
Carr, E. C	Coshocton	1882
Carrick, A. L	Cincinnati	1871
Case. Guy B	Cleveland	1880
Chamberlain, D. P	Toledo	1874
Chase, James L	Toledo	1874
Christopher, H. H	Van Wert	1881
Clark, D M	Columbus	1881
Clark, Henry P	Ashland	1862
Clark, John H	Mechanicsburg	1869
Clark, M. S	Youngstown	1865
Coldham, James	Toledo	1884
Coleman, N. R	Columbus	1875
Collamore, G. A	Toledo	1880
Collins, John M	Toronto	1884
Conklin, W. J	Dayton	1868
Connor, P. S	Cincinnati	1868
Cooney, H	Bryan	1875
Cooper, A	Columbus	1881
Corlett, W. T	Cleveland	1882
Corson, John	Middletown	1866
Corson, O. M	Trenton	1879
Cornwell, H. G	Los Angeles, Cal.	1874
Cotton, J. D	Marietta	1852
Courtwright, A. P	Circleville	1871
Courtwright, G. S	Lithopolis	1867
Covington, P. D	Bellefontaine	1881
Cox, J. M	South Salem	1877
Crafts, J. M	Cuyahoga Falls	1880
Craig, J. W	Mansfield	1874
Crane, A. M	Waldo	1881
Cretcher, Wm. H	Bellefontaine	1880
Culbertson, Howard	Zanesville	1855
Culbertson, J. C	Cincinnati	1880
Cushing, H. K	Cleveland	1857
Cuykendall, M. C	Eucyrus	1874
Dandridge, N. P	Cincinnati	1871
Darby, F. H	Morrow	1882
Daugherty, J. D	Dayton	1879
Davis, A. A	Mineral Point	1884
Davis, B. W	Marion	1878

NAME.	P. O. ADDRESS.	ADMITTED.
Davies, W. C	Granville	1882
Davis, Wm. B	Cincinnati	1865
Davy, R. B	Cincinnati	1875
Dawson, J. O	Westerville	1881
Dawson, W. W	Cincinnati	1853
Denig, R. M	Columbus	1851
Denman, W. C	Marion	1882
Dickey, John A	Goshen	1884
Dickey, Thomas A	Middletown	1879
Dimmick, O. A	Chardon	1884
Donahoe, H. J	Sandusky	1854
Donnellan, J. E	Germantown	1879
Dorland, W. L	Chicago, Ill	1878
Downs, Samuel	Waterville	1876
Drake, J. L	Lebanon	1859
Drury, Wm. H	Columbus	1859
DuBois, E. B	Dayton	1879
Dumm, S. C	Columbus	1877
Duncan, James A	Toledo	1874
Dunlap, Alexander	Springfield	1854
Dunlap, A. S	Dayton	1868
Dunlap, C. O	McArthur	1881
Dutton, C. F	Cleveland	1880
Dwyer, R	Petersburg	1879
Ealy, A. E	Albuquerque, N. M.	1879
Ebright, L. S	Akron	1870
Eckman, Hiram	Tuscarawas	1869
Eichberg, Joseph	Cincinnati	1882
Elster, L. A	Jeffersonville	1884
Emery, W. H	Mt. Sterling	1881
Erwin, R. W	Bay City, Mich	1872
Evans, A. E	Columbus	1882
Evans, James W	Chillicothe	1884
Evans, R. R	Franklin	1879
Everhard, N. S	Wadsworth	1870
Ewing, James	Hebron	1875
Ewing, S	Plain City	1882
Fackler, J. E	Versailles	1879
Falconer, Cyrus	Hamilton	1854
Fenneberg, Gustavus	Toledo	1874
Ferguson, J. W	Congress	1882
Ferrell, C. B	Columbus	1878

NAME.	P. O. ADDRESS.	ADMITTED.
Firestone, J. L	Salem	1870
Firestone, L	Wooster	1852
Fisher, H. M	Akron	1881
Fisher, P. Q	Nashport	1873
Fisher, W. S	Bridgeport	1876
Floyd, J. C. M	Steubenville	1884
Follett, Alfred	Granville	1864
Forbes, S. F	Toledo	1856
Foster, G. F	Kingston Center	1882
Fowler, C. R	Sparta	1880
Fowler, S. W	Delaware	1873
Frankenburg, O	Columbus	....
Franklin, G. S	Chillicothe	1876
Frizzell, W. A	Freestone	1872
Fuller, S. W	Bellefontaine	1853
Fulton, C	Bucyrus	1881
Galbraith, E. C	Frankfort	1876
Galer, Frank M	DeGraff	1874
Gawne, A. J	Sandusky	1870
Gay, N	Columbus	1848
Gibson, Richard D	Youngstown	1882
Gibson, Robert M	Portsmouth	1884
Gill, H. Z	Cleveland	1884
Gillespie, J. M	Bloomingsburg	1880
Gilliam, D. T	Columbus	1873
Glenn, W. W	Bloomingsburg	1882
Goodhue, George	Dayton	1884
Goodson, J. W	Sterling, Kan	1874
Gordon, T. W	Georgetown	1849
Goss, J. H	Lancaster	1884
Graefe, Philip	Sandusky	1875
Graefe, Wm	Sandusky	1874
Granger, B. D	Russell Station	1878
Granger, F. M	Russell Station	1881
Gray, F. C	Lewisburg	1879
Gray, S. S	Piqua	1867
Greenamyer, P. S	Smithville	1875
Green, D. W	Dayton	1882
Green, H. S	Cardington	1878
Green, J. W	Fairfield	1853
Green, J. H	Troy	1871
Greenleaf, C. R	Columbus	1884

NAME.	P. O. ADDRESS.	ADMITTED.
Groves, J. E	Uhrichville	1884
Gruwell, J. P	Damascus	1884
Guerin, Z. F	Columbus	1884
Guittard, F	New Bedford	1875
Halderman, D	Columbus	1869
Hall, B. B	Chillicothe	1884
Hall, C	Burlington	1872
Hall, W. W	Springfield	1882
Hamilton, J. W	Columbus	1849
Hammel, M	Circleville	1878
Harrison, Eugene B	Napoleon	1869
Hart, B. F	Marietta	1854
Hart, C. S	Lincoln, Neb	1877
Hartman, S. D	Tippecanoe City	1874
Hathaway, H	E. Toledo	1874
Hedges, W. B	Delaware	1878
Heiter, Carl	Sandusky	1875
Heistand, E. B	Kenton	1884
Helbish, F. S	Green Springs	1876
Helmick, G. W	Harrisburg	1878
Henderson, D. W	Marysville	1856
Henderson, J. P	Newville	1850
Henderson, R. A	Upper Sandusky	1865
Hendrickson, Hugh	Columbus	1868
Herrick, H. J	Cleveland	1868
Herrick, L. C	Columbus	1871
Heustis, I	Chesterville	1869
Hewetson, A. H	St. Clairsville	1878
Hill, C. C	Levering	1884
Hill, N. S	Neville	1866
Hill, H	West Alexandria	1867
Hiner, S. B	Lima	1874
Himes, Isaac N	Cleveland	1874
Hims, J. A	Van Wert	1879
Hintzleman, Chas	Cleveland	1884
Hipple, J. R	Waldo	1881
Hobson, J. A	Cleveland	1880
Hohly, Frederick	Toledo	1874
Hoff, J. W	Pomeroy	1872
Holliday, B. W	Cleveland	1875
Hoover, C. C	Ross	1880
Hough, C. A	Waynesville	1881

NAME.	P. O. ADDRESS.	ADMITTED.
Hough, W. S	Cuyahoga Falls	1875
House, A. F	Cleveland	1880
Hovey, A. B	Tiffin	1875
Howard, E. W	Akron	1852
Hughes, M. A	Port Clinton	1877
Hughs, J. H	Delaware	1884
Humiston, W. H	Cleveland	1880
Hunt, W. C	Warren	1884
Hunter, F. S	Ashland	1878
Hurd, A	Findlay	1870
Hueston, R. C	Oxford	1868
Hyatt, E. H	Delaware	1862
Iddings, A. H	Dayton	1879
Ikirt, G. P	East Liverpool	1882
Isham, A. B	Walnut Hills	1871
Jacobs, W. C	Akron	1881
Jenkins, W. J	Plain City	1880
Jennings, E	Dayton	1867
Jewett, George F	Hillards	1884
Jewett, W. H	West Cannan	1869
Jewett, H. S	Dayton	1871
Johnson, Homer	Oberlin	1880
Johnson, O	Worthington	1878
Jones, C. B	Xenia	1879
Jones, T	London	1878
Jones, T. W	Columbus	1847
Jones, R. E	Gomer	1863
Jones, W. W.	Toledo	1849
Jones, J. D	Newburg	1870
Judkins, C. P	Cincinnati	1878
Kay, Isaac	Springfield	1853
Kearney, T. H	Knoxville, Tenn	1871
Keefer, A. H	Lewis Centre	1884
Kelly, H. R	Galion	1868
Kelly, W. J	Indianapolis, Ind	1881
Kemper, A. C	Cincinnati	1871
Kennedy, C. P	Bellefontaine	1881
Kendig, E. V	Haysville	1874
Kerr, John N	Mechanicsburg	1884
Keyt, A. T	Walnut Hills	1850
King, E. L	Ashtabula	1880
King, C P	Newark	1882

NAME.	P. O. ADDRESS.	ADMITTED.
King, E. G	Richwood	1882
King, A. P	London	1882
King, C W	Cleveland Ins. Asyl.	1881
King, John I	Burgh Hill	1884
Kinkead, W. W	Marietta	1884
Kinsman, D. N	Columbus	1864
Kirkley, C. A	Toledo	1874
Kirkpatrick, J. F.	Sedalia	1884
Knowlton, A. P	Berea	1870
Koogler, M. A	DeGraff	1884
Krause, Bernard	Cleveland	1880
Kreiger, G. L	Lebanon	1884
Kurz, C. E	Bellaire	1875
Landis, H. G	Columbus	1878
Larimore, F. C	Mt. Vernon	1871
Larimore, James	Newark	1875
Lash, H. M	Athens	1879
Lash, J. W	Chillicothe	1879
Lee, E. B	Garretsville	1870
Lee, H. J	Cleveland	1880
Lee, M. F	Columbus	1881
Leever, J. H	Defiance	1881
Lenhart, P. J	Wauseon	1880
Leonard, B. B	West Liberty	1854
Leonard, B. S	West Liberty	1882
Leslie, J. M	Frankfort	1878
LeVan, D. H	Mt. Victory	1879
Lewis, W. C	Rushville	1869
Little, D	Logan	1882
Loving, S	Columbus	1858
Lowman, J. H	Cleveland	1877
Ludington, H	Omaha, Neb	1871
Lyman, C. N	Wadsworth	1852
Mack, John	Shelby	1853
Mann, H. L	Wapakoneta	1875
Markel, I. F	Mifflin	1881
Marshall, O. W	Jeffersonville	1881
Martin, F. D	E. Townsend	1884
Martin, J. T	Green Camp	1884
Martin, G	Adrian, Mich	1877
Mattoon, F. N	Plain City	1881
McCarty, O. C	Polk	1858

NAME.	P. O. ADDRESS.	ADMITTED.
McCasky, H	Hamersville	1868
McClure, James	Marietta	1866
McCollum, E. J	Tiffin	1871
McConnell, D. W	Marseilles	1884
McConnelly, F. C	Vermillion	1875
McCurdy, John	Youngstown	1870
McCurdy, S. L	Dennison	1882
McCullough, J. G	Bellaire	1868
McDowell, John O	Delaware	1884
McEbright, T	Akron	1866
McElwe, S	Newcastle	1866
McGee, J. B	Cleveland	1880
McGrew, Henry	Pleasant Ridge	1878
McIlhenny, J. J	Dayton	1846
McIntire, W	Millville	1881
McLean, J. T	New Philadelphia	1884
McMillen, J. W	Mt. Vernon	1878
McMurray, A B	Marion	1879
McNutt, H. E	Milwaukee, Wis	1877
McPherson, J. T	Cambridge	1884
Mead, M. L	Brooklyn Village	1875
Merrill, A. E	Vermillion	1876
Merriman, E. O	Conneaut	1884
Merriman, D. J	Painesville	1884
Merriman, C. R	Akron	1882
Metzler, A. S	Buena Vista	1874
Mills, J. T	Jersey	1878
Miller, A. C	Cleveland	1858
Miller, C. A	Cincinnati	1871
Millikin, Dan	Hamilton	1879
Montgomery, H. B. B	Gilboa	1881
Moore, A. C	Amelia	1869
Moore, D. D	Xenia	1879
Moore, J. L	Moscow	1879
Moore, James	Ironton	1872
Moore, L. G	Kinsman	1878
Moore, William	New Lisbon	1865
Morris, Jonathan	Ironton	1853
Morris, Joseph	Columbus Grove	1879
Morse, D. A	Oxford	1868
Mory, J. J	St. Henry	1871
Mory, D. B. Jr	Wilmington	1884

NAMES.	P. O. ADDRESS.	ADMITTED.
Mosgrove, Jas. M.	Urbana	1884
Mounts, J. L.	Morrow	1860
Murbach, A. J.	Archibald	1874
Murphy, J. A.	Cincinnati	1872
Murray, L. S.	Medina	1870
Muscroft, C. S.	Cincinnati	1854
Myers, Benjamin	Ashland	1874
Myers, I. A.	Shelby	1881
Nash, W. H. H	Columbus	1874
Nau, J. G.	Carroll	1878
Neil, T. L.	Dayton	1863
Neil, Alexander	Columbus	1868
Nelson, H. W.	Steubenville	1878
Newman, J. E.	Gilboa	1880
Nolen, J. G	Toledo	1874
Norman, Frank	Columbus	1873
Norris, T. B.	Alton	1882
Nunemaker, H. B.	Phil. Pa. Ins. Asyl.	1875
Ogan, Ambrose	Sedalia	1884
Paige, W. N.	Johnstown	1878
Palmer, C. D	Cincinnati	1871
Patterson, A. V.	Mansfield	1861
Pearce, Enoch, Jr.	Steubenville	1859
Pearce, H. C.	Urbana	1867
Pennell, W. W	Fredericktown	1884
Perrier, John	Cleveland	1884
Pickard, P.	Mt. Vernon	1878
Pixley, M. S.	Portsmouth	1873
Pomerene, P. P.	Berlin	1870
Pomeroy, F. S.	Montville	1884
Pomeroy, O.	Chardon	1869
Pope, L.	Port Clinton	1875
Powell, W. S	Defiance	1881
Pratt, E. B.	Mt. Sterling	1869
Preston, J. C.	Cleveland	1857
Price, Joseph	Randolph	1852
Priest, S. C.	Newark	1878
Primrose, J. P.	Nelsonville	1872
Pullen, G. W.	Logan	1864
Quinn, A. T.	Wilmington	1881
Rabe, B. A.	Cleveland	1880
Rankin, T. W.	Kirkersville	1881

NAMES.	P. O. ADDRESS.	ADMITTED.
Ranney, S. W	Hope	1878
Ransohoff, Joseph	Cincinnati	1879
Reamy, T. A	Cincinnati	1855
Reed, C. H	Toledo	1873
Reed, C. A. L	Hamilton	1881
Reed, E. J	Leipsic	1878
Reed, R. C. S	Jones' Station	1867
Reed, R. Harvey	Mansfield	1884
Reed, Wm	Iberia	1865
Reeve, J. C	Dayton	1861
Rice, J. B	Fremont	1868
Rice, Robert H	Fremont	1880
Richards, F. B	Lake	1884
Richardson, D. W	DeGraff	1884
Ricketts, E. S	Portsmouth	1884
Ricketts, B. M	Columbus	1882
Ridenour, W. T	Toledo	1870
Ridgway, N. B	Galion	1878
Riggs, J. U	Bryan	1873
Robinson, J. D	Wooster	1856
Rogers, J. H	Springfield	1859
Rosenfeldt, A	Cincinnati	1881
Rosenwasser, M	Cleveland	1880
Ross, W. M	Millersburg	1882
Row, G. T	Circleville	1881
Rupp, Samuel M	Warren	1884
Russ, R. C	Hillsboro	1880
Russell, E. S	Tuscarawas	1840
Russell, J. W	Mt. Vernon	1848
Ryan, George W	Cincinnati	1884
Sadler, J	Columbus	1878
Sabine, A	Marysville	1882
Sager, J	North Washington	1882
Sapp, C. E	Gambier	1881
Sattler, Robert	Cincinnati	1872
Saunders, H	Oxford	1879
Saxton, O. H	Washington C. H	1884
Saylor, Wm	Gratis	1871
Scarf, W. D	Bellefontaine	1855
Schuetzler, H. M	Toledo	1874
Schueller, J. B	Columbus	1869
Scott, A. C	Bladensburg	1884

NAMES.	P. O. ADDRESS.	ADMITTED.
Scott, B. B	Mt. Vernon	1884
Scott, Daniel A	Akron	1884
Scott, W. A	Swanton	1878
Scott, W. J	Cleveland	1855
Scott, Xenophon C	Cleveland	1874
Scoville, S. S	Lebanon	1859
Seeley, W. W	Cincinnati	1871
Sharp, H. J	London	1882
Sheldon, S. B	Five Mile	1882
Shepherd, W. W	Hillsboro	1871
Shoemaker, J. M	Napoleon	1869
Silver, D. R	Sidney	1870
Sinnett, E	Granville	1850
Skinner, S. W	Toledo	1881
Slocum, C. E	Defiance	1874
Smith, D. B	Cleveland	1870
Smith, J. M	New Philadelphia	1884
Smith, H. L	Bloomingburg	1878
Smith, S. H	Warren	1880
Snodgrass, J	Kenton	1878
Snyder, C	West Jefferson	1881
Snyder, D. J	Scio	1850
Snyder, S. P	New Bedford	1882
Souders, Samuel	Dayton	1879
Southard, J. M	Marysville	1860
Southard, J. Q	Raymond	1882
Speer, A. T	Newark	1878
Spees, S. J	Hillsboro	1863
Spooner, H. R	Republic	1880
Sprague, James	London	1866
Stanley, E	Sandusky	1870
Stark, W	Cincinnati	1871
Stansell, J. A	Forest	1866
Starch, A. B	Milan	1880
Steeley, E. A	Anna	1877
Stephens, Alfred H	N. M. Home, Dayton	1884
Stephenson, J. H	Leesville	1860
Stevens, E. B	Lebanon	1853
Steward, S. H	Columbus	1869
Stewart, T. H	Church Hill	1877
Stillwell, Thomas	Fremont	1857
Stockstill, J. N	New Carlisle	1867

NAMES.	P. O. ADDRESS.	ADMITTED.
Stockton, Geo.	Columbus	1881
Storey, William	Castalia	1884
Stouffer, C. C.	West Salem	1878
Strain, A. J	London	1881
Sturgeon, S. H.	Ada	1882
Sweney, R. L.	Marion	1859
Sylvester, J. E.	McArthur	1881
Tauber, B.	Cincinnati	1876
Taylor, W. H.	Cincinnati	1874
Telfair, Geo. M.	Bloomington	1884
Thacker, L. G.	Defiance	1881
Thomas, F. W.	Marion	1884
Thompson, J B.	Columbus	1846
Thompson, J. C.	South Bloomfield	1848
Thompson, J. T.	Rollersville	1881
Thorn, E. J.	Yellow Springs	1878
Thorn, S. S.	Toledo	1873
Tichnor, E. J.	Lebanon	1869
Tipton, T. C.	Williamsport	1878
Todd, Frank H.	Painesville	1880
Townsend, Clark	Cleveland	1880
Tracy, J. L.	Toledo	1884
Trimble, R. T.	New Vienna	1881
Turney, Joseph	Nevada	1864
Underhill, J. W	Cincinnati	1874
Underwood, A	London	1869
Underwood, W. J.	Akron	1869
Vanatta, E.	Fultonham	1855
Vance, R. A	Cleveland	1881
Vandervort, J. W.	Harveysburg	1864
Vickers, G. W.	Wapakoneta	1882
Vigor, F. A.	New Dover	1884
Voorhees, S. R	Mason	1873
Waggoner, Joseph	Ravenna	1870
Walker, A. B.	Canton	1882
Wallace, John	Rushsylvania	1879
Wallace, J. P.	Bellefontaine	1879
Walton, J. E.	Cincinnati	1871
Ward, W. A.	Conneaut	1880
Warner, A. D	Fullerton	1880
Warner, Frank	Columbus	1884
Watson, D.	Bellefontaine	1882

NAMES.	P. O. ADDRESS.	ADMITTED.
Weaver, J. M.	Dayton	1865
Webster, E. W.	Kingsville	1876
Weed, T. A.	Cleveland	1880
Weeks, O. W.	Marion	1884
Welsh, J. M.	Deersville	1873
Wellons, G. S	Barnesville	1878
Wells, Edward F.	Minister	1884
West, John E.	St. Clairsville	1884
West, T. J	Tiffin	1875
Whistler, H.	New Antioch	1881
Whitmar, Joel E.	Mt. Hope	1874
Whittaker, J. T.	Cincinnati	1871
Wilbur, A. M.	West Unity	1874
Wilkins, John A.	Delta	1874
Wilson, D. C	Ironton	1872
Wilson, E. J.	Mt. Vernon	1884
Wilson, J. L.	Greenfield	1871
Wilson, W. H.	Greenfield	1865
Williams, A. S	Fostoria	1852
Williams, E	Cincinnati	1856
Williams, J. L.	Cardington	1878
Williams, M. L.	Vienna	1880
Winslow, J. W.	Spring Mountain	1881
Wise, D. B.	Mt. Eaton	1881
Wise, S. P.	Millersburg	1875
Woods, J. T.	Toledo	1862
Wood, J. S.	Collingwood	1880
Woodruff, L.	Alton	1867
Woods, J. R.	Warren	1871
Woodward, W. R.	Cincinnati	1871
Wright, S. St. J.	Tallmadge	1880
Wylie, J. L.	Ripley	1872
Yost, W. N.	Mt. Blanchard	1879
Zenner, Philip	Cincinnati	1882
Zeigler, H. H.	Ayersville	1884

Honorary and Corresponding Members.

Professor Ferdinand Hebra, Vienna, Austria.
Professor Isidore Neumann, Vienna, Austria.
Professor Herman Weiderhofer, Vienna. Austria.
Professor Carl Sigmund, Vienna, Austria.
Professor Hermann Zeissl, Vienna, Austria.
Professor Ed. C. Seaton, Medical Inspector of the Privy Council, London, England.
Professor M. Jules Guerin, Member Imperial Academy of Medicine, Paris, France.

HONORARY MEMBERS.

Bailey, M. J., M. D., New York City.
Bartholow, Roberts, M. D., Philadelphia, Pennsylvania.
Beeman, P., M. D., Sidney.
Blackburn, J. D., M. D., Covington, Kentucky.
Brewster, J. A., M. D., Lawrenceburg, Indiana.
Brodie, William, M. D., Detroit, Michigan.
Gundry, Richard, M. D., Catonsville, Maryland.
Guthrie, G. B., M. D., New York City.
Harding, M. M., M. D., Lawrenceburg, Indiana.
Hempstead, G. S. B., M. D., Portsmouth.
Hill, E. L., M. D., Oxford.
Houghton, R. E., M. D., Richmond, Indiana.
Hunt, S. P., M. D., Sterling, Illinois.
Jenks, E. W., M. D., Detroit, Michigan.
Kerr, John, M. D., Canton, China,
Kitchen, J. W., M. D., Indianapolis, Indiana.
Lyons, W. B., M. D., Huntington, Indiana.
Noyes, J. F., M. D., Detroit, Michigan.
Steele, H. K., M. D., Denver, Colorado.
Stevenson, J. M., M. D., Pittsburgh, Pennsylvania.
Sutton, George, M. D., Aurora, Indiana.
Sutton, R. S., M. D., Pittsburgh, Pennsylvania.

CODE OF ETHICS

OF THE

American Medical Association.

CODE OF MEDICAL ETHICS.

OF THE DUTIES OF PHYSICIANS TO THEIR PATIENTS, AND OF THE OBLIGATIONS OF PATIENTS TO THEIR PHYSICIANS.

ART. I.—*Duties of physicians to their patients.*

§ 1. A physician should not only be ever ready to obey the calls of the sick, but his mind ought also to be imbued with the greatness of his mission, and the responsibility he habitually incurs in its discharge. These obligations are the more deep and enduring, because there is no tribunal other than his own conscience to adjudge penalties for carelessness or neglect. Physicians should, therefore, minister to the sick with due impressions of the importance of their office; reflecting that the ease, the health, and the lives of those committed to their charge, depend on their skill, attention and fidelity. They should study, also, in their deportment, so to unite *tenderness* with *firmness*, and *condescension* with *authority*, as to inspire the minds of their patients with gratitude, respect and confidence.

§ 2. Every case committed to the charge of a physician should be treated with attention, steadiness and humanity. Reasonable indulgence should be granted to the mental imbecility and caprices of the sick. Secrecy and delicacy, when required by peculiar circumstances, should be strictly observed; and the familiar and confidential intercourse to which physicians are admitted in their professional visits, should be used with discretion, and with the most scrupulous regard to fidelity and honor. The obligation of secrecy extends beyond the period of professional services; none of the privacies of personal and domestic life, no infirmity of disposition or flaw of character observed during professional attendance should ever be divulged by the physician except when he is imperatively required to do so.

The force and necessity of this obligation are indeed so great, that professional men have, under certain circumstances, been protected in their observance of secrecy by courts of justice.

§ 3. Frequent visits to the sick are in general requisite, since they enable the physician to arrive at a more perfect knowledge of the disease—to meet promptly every change which may occur, and also tend to preserve the confidence of the patient. But unnecessary visits are to be avoided, as they give useless anxiety to the patient, tend to diminish the authority of the physician and render him liable to be suspected of interested motives.

§ 4. A physician should not be forward to make gloomy prognostications, because they savor of empiricism, by magnifying the importance of his services in the treatment or cure of the disease. But he should not fail, on proper occasions, to give to the friends of the patient timely notice of danger when it really occurs; and even to the patient himself, if absolutely necessary. This office, however, is so peculiarly alarming when executed by him, that it ought to be declined whenever it can be assigned to any other person of sufficient judgment and delicacy. For the physician should be the minister of hope and comfort to the sick; that, by such cordials to the drooping spirit, he may smooth the bed of death, revive expiring life, and counteract the depressing influences of those maladies which often disturb the tranquillity of the most resigned in their last moments. The life of a sick person can be shortened not only by the acts, but also by the words or the manner of a physician. It is, therefore, a sacred duty to guard himself carefully in this respect, and to avoid all things which have a tendency to discourage the patient and to depress his spirits.

§ 5. A physician ought not to abandon a patient because the case is deemed incurable; for his attendance may continue to be highly useful to the patient, and comforting to the relatives around him, even in the last period of a fatal malady, by alleviating pain and other symptoms, and by soothing mental anguish. To decline attendance, under such circumstances, would be sacrificing to fanciful delicacy and mistaken liberality, that moral duty which is independent of, and far superior to, all pecuniary consideration.

§ 6. Consultations should be promoted in difficult or protracted cases, as they give rise to confidence, energy, and more enlarged views in practice.

§ 7. The opportunity which a physician not unfrequently enjoys of promoting and strengthening the good resolutions of his patients, suffering under the consequences of vicious conduct, ought never to be neglected. His counsels, or even remonstrances, will give satisfaction, not offence, if they be proffered with politeness, and evince a genuine love of virtue, accompanied by a sincere interest in the welfare of the person to whom they are addressed.

ART. II.—*Obligations of patients to their physicians.*

§ 1. The members of the medical profession, upon whom is enjoined the performance of so many important and arduous duties towards the community, and who are required to make so many sacrifices of comfort, ease and health, for the welfare of those who avail themselves of their services, certainly have a right to expect and require, that their patients should entertain a just sense of the duties which they owe to their medical attendants.

§ 2. The first duty of a patient is to select as his medical adviser one who has received a regular professional education. In no trade or occupation do mankind rely on the skill of an untaught artist; and in medicine, confessedly the most difficult and intricate of the sciences, the world ought not to suppose that knowledge is intuitive.

§ 3. Patients should prefer a physician whose habits of life are regular, and who is not devoted to company, pleasure, or to any pursuit incompatible with his professional obligations. A patient should, also, confide the care of himself and family, as much as possible, to one physician; for a medical man who has become acquainted with the peculiarities of constitution, habits, and predispositions of those he attends, is more likely to be successful in his treatment than one who does not possess that knowledge.

A patient who has thus selected his physician should always apply for advice in what may appear to him trivial cases, for the most fatal results often supervene on the slightest accidents. It is of still more importance that he

should apply for assistance in the forming stage of violent diseases; it is to a neglect of this precept that medicine owes much of the uncertainty and imperfection with which it has been reproached.

§ 4 Patients should faithfully and unreservedly communicate to their physician the supposed cause of their disease. This is the more important, as many diseases of a mental origin simulate those depending on external causes, and yet are only to be cured by ministering to the mind diseased. A patient should never be afraid of thus making his physician his friend and adviser; he should always bear in mind that a medical man is under the strongest obligations of secrecy. Even the female sex should never allow feelings of shame or delicacy to prevent their disclosing the seat, symptoms and causes of complaints peculiar to them. However commendable a modest reserve may be in the common occurrences of life, its strict observance in medicine is often attended with the most serious consequences, and a patient may sink under a painful and loathsome disease, which might have been readily prevented had timely intimation been given to the physician.

§ 5. A patient should never weary his physician with a tedious detail of events or matters not appertaining to his disease. Even as relates to his actual symptoms, he will convey much more real information by giving clear answers to interrogatories, than by the most minute account of his own framing. Neither should he obtrude upon his physician the details of his business nor the history of his family concerns.

§ 6. The obedience of a patient to the prescriptions of his physician should be prompt and implicit. He should never permit his own crude opinions as to their fitness to influence his attention to them. A failure in one particular may render an otherwise judicious treatment dangerous, and even fatal. This remark is equally applicable to diet, drink and exercise. As patients become convalescent, they are very apt to suppose that the rules prescribed for them may be disregarded, and the consequence, but too often, is a relapse. Patients should never allow themselves to be persuaded to take any medicine whatever, that may be recommended to them by the self-constituted doctors and doctresses who are so frequently met with, and who

pretend to possess infallible remedies for the cure of every disease. However simple some of their prescriptions may appear to be, it often happens that they are productive of much mischief, and in all cases they are injurious, by contravening the plan of treatment adopted by the physician.

§ 7. A patient should, if possible, avoid even the *friendly visits of a phycician* who is not attending him—and when he does receive them, he should never converse on the subject of his disease, as an observation may be made, without any intention of interference, which may destroy his confidence in the course he is pursuing, and induce him to neglect the directions prescribed to him. A patient should never send for a consulting physician without the express consent of his own medical attendant. It is of great importance that the physicians should act in concert; for, although their modes of treatment may be attended with equal success when employed singly, yet conjointly they are very likely to be productive of disastrous results.

§ 8. When a patient wishes to dismiss his physician, justice and common courtesy require that he should declare his reasons for so doing.

§ 9. Patients should always, when practicable, send for their physician in the morning, before his usual hour of going out; for, being early aware of the visits he has to pay during the day, the physician is able to apportion his time in such a manner as to prevent an interference of engagements. Patients should also avoid calling on their medical adviser unnecessarily during the hours devoted to meals or sleep. They should always be in readiness to receive the visits of their physician, as the detention of a few minutes is often of serious inconvenience to him.

§ 10. A patient should, after his recovery, entertain a just and enduring sense of the value of the services rendered him by his physician; for these are of such a character, that no mere pecuniary acknowledgment can repay or cancel them.

OF THE DUTIES OF PHYSICIANS TO EACH OTHER, AND TO THE PROFESSION AT LARGE.

ART. I.—*Duties for the support of professional character.*

§ 1. Every individual, on entering the profession, as he becomes thereby entitled to all its privileges and im-

munities, incurs an obligation to exert his best abilities to maintain its dignity and honor, to exalt its standing, and to extend the bounds of its usefulness. He should, therefore, observe strictly such laws as are instituted for the government of its members; should avoid all contumelious and sarcastic remarks relative to the faculty as a body; and while, by unwearied diligence, he resorts to every honorable means of enriching the science, he should entertain a due respect for his seniors, who have, by their labors, brought it to the elevated condition in which he finds it.

§ 2. It is not in accord with the interests of the public or the honor of the profession that any physician or medical teacher should examine or sign diplomas or certificates of proficiency for, or otherwise be specially concerned with, the graduation of persons whom they have good reason to believe intend to support and practice any exclusive and irregular system of medicine.

§ 3. There is no profession, from the members of which greater purity of character, and a higher standard of moral excellence are required, than the medical; and to attain such eminence is a duty every physician owes alike to his profession and to his patients. It is due to the latter, as without it he can not command their respect and confidence, and to both, because no scientific attainments can compensate for the want of correct moral principles. It is also incumbent upon the faculty to be temperate in all things, for the practice of physic requires the unremitting exercise of a clear and vigorous understanding; and, on emergencies, for which no professional man should be unprepared, a steady hand, an acute eye, and an unclouded head may be essential to the well-being, and even to the life, of a fellow-creature.

§ 4. It is derogatory to the dignity of the profession to resort to public advertisements, or private cards, or handbills, inviting the attention of individuals affected with particular diseases—publicly offering advice and medicine to the poor gratis, or promising radical cures; or to publish cases and operations in the daily prints, or suffer such publications to be made; to invite laymen to be present at operations, to boast of cures and remedies, to adduce certificates of skill and success, or to perform any other similar acts. These are the ordinary practices of empirics, and are highly reprehensible in a regular physician.

§ 5. Equally derogatory to professional character is it for a physician to hold a patent for any surgical instrument or medicine; or to dispense a secret *nostrum*, whether it be the composition or exclusive property of himself or of others. For, if such nostrum be of real efficacy, any concealment regarding it is inconsistent with beneficence and professional liberality; and if mystery alone give it value and importance, such craft implies either disgraceful ignorance or frandulent avarice. It is also reprehensible for physicians to give certificates attesting the efficacy of patent or secret medicines, or in any way to promote the use of them.

ART. II.—*Professional services of physicians to each other.*

§ 1. All practioners of medicine, their wives, and their children while under the paternal care, are entitled to the gratuitous services of any one or more of the faculty residing near them, whose assistance may be desired. A physician afflicted with disease is usually an incompetent judge of his own case; and the natural anxiety and solicitude which he experiences at the sickness of a wife, a child, or any one who, by the ties of consanguinity, is rendered peculiarly dear to him, tend to obscure his judgment, and produce timidity and irresolution in his practice. Under such circumstances, medical men are peculiarly dependent upon each other, and kind offices and professional aid should always be cheerfully and gratuitously afforded. Visits ought not, however, to be obtruded officiously; as such unasked civility may give rise to embarrassment, or interfere with that choice on which confidence depends. But, if a distant member of the faculty, whose circumstances are affluent, request attendance, and an honorarium be offered, it should not be declined; for no pecuniary obligation ought to be imposed, which the party receiving would wish not to incur.

ART. III.—*Of the duties of physicians as respects vicarious offices.*

§ 1. The affairs of life, the pursuit of health, and the various accidents and contingencies to which a medical man is peculiarly exposed, sometimes require him tempora-

rily to withdraw from his duties to his patients, and to request some of his professional brethren to officiate for him. Compliance with this request is an act of courtesy, which should always be performed with the utmost consideration for the interest and character of the family physician, and when exercised for a short period, all the pecuniary obligations for such service should be awarded to him. But if a member of the profession neglect his business in quest of pleasure and amusement, he can not be considered as entitled to the advantages of the frequent and long-continued exercise of this fraternal courtesy, without awarding to the physican who officiates, the fees arising from the discharge of his professional duties.

In obstetrical and important surgical cases, which give rise to unusual fatigue, anxiety and responsibllity, it is just that the fees accruing therefrom should be awarded to the physician who officiates.

ART. IV.—*Of the duties of physicians in regard to consultations.*

§ 1. A regular medical education furnishes the only presumptive evidence of professional abilities and acquirements, and ought to be the only acknowledged right of an individual to the exercise and honors of his profession. Nevertheless, as in consultations the good of the patient is the sole object in view, and this is often dependent on personal confidence, no intelligent regular practitioner, who has a license to practice from some medical board of known and acknowledged respectability, recognized by this Association, and who is in good moral and professional standing in the place in which he resides, should be fastidiously excluded from fellowship, or his aid refused in consultation, when it is requested by the patient. But no one can be considered as a regular practitioner or a fit associate in consultation, whose practice is based on an exclusive dogma, to the rejection of the accumulated experience of the profession, and of the aids actually furnished by anatomy, physiology, pathology and organic chemistry.

§ 2. In consultations, no rivalship or jealousy should be indulged; candor, probity and all due respect should be exercised towards the physician having charge of the case.

§ 3. In consultations, the attending physician should be first to propose the necessary questions to the sick; after which the consulting physician should have the opportunity to make such further inquires of the patient as may be necessary to satisfy him of the true character of the case. Both physicians should then retire to a private place for deliberation; and the one first in attendance should communicate the directions agreed upon to the patient or his friends, as well as any opinions which it may be thought proper to express. But no statement or discussion of it should take place before the patient or his friends, except in the presence of all the faculty attending, and by their common consent; and no *opinions* or *prognostications* should be delivered which are not the result of previous deliberation and concurrence.

§ 4. In consultations, the physician in attendance should deliver his opinion first; and when there are several consulting, they should deliver their opinions in the order in which they have been called in. No decision, however, should restrain the attending physician from making such variations in the mode of treatment as any subsequent unexpected change in the character of the case may demand. But such variation, and the reasons for it, ought to be carefully detailed at the next meeting in consultation. The same privilege belongs also to the consulting physician if he is sent for in an emergency, when the regular attendant is out of the way, and similar explanations must be made by him at the next consultation.

§ 5. The utmost punctuality should be observed in the visits of physicians when they are to hold consultation together, and this is generally practicable, for society has been considerate enough to allow the plea of a professional engagement to take precedence of all others, and to be an ample reason for the relinquishment of any present occupation. But as professional engagements may sometimes interfere, and delay one of the parties, the physician who first arrives should wait for his associate a reasonable period, after which the consultation should be considered as postponed to a new appointment. If it be the attending physician who is present, he will, of course, see the patient and prescribe; but if it be the consulting one, he should retire, except in case of emergency, or when he has been called from a considerable distance, in which latter case he

may examine the patient, and give his opinion in *writing*, and *under seal*, to be delivered to his associate.

§ 6. In consultations, theoretical discussions should be avoided, as occasioning perplexity and loss of time. For there may be much diversity of opinion concerning speculative points, with perfect agreement in those modes of practice which are founded, not on hypothesis, but on experience and observation.

§ 7. All discussions in consultation should be held as secret and confidential. Neither by words nor manner should any of the parties to a consultation assert or insinuate that any part of the treatment pursued did not receive his assent. The responsibility must be equally divided between the medical attendants—they must equally share the credit of success as well as the blame of failure.

§ 8. Should an irreconcilable diversity of opinion occur when several physicians are called upon to consult together, the opinion of the majority should be considered as decisive; but if the numbers be equal on each side, then the decision should rest with the attending physician. It may, moreover, sometimes happen that two physicians can not agree in their views of the nature of a case, and the treatment to be pursued. This is a circumstance much to be deplored, and should always be avoided, if possible, by mutual concessions, as far as they can be justified by a conscientious regard for the dictates of judgment. But in the event of its occurrence, a third physician should, if practicable, be called to act as umpire; and, if circumstances prevent the adoption of this course, it must be left to the patient to select the physician in whom he is most willing to confide. But, as every physician relies upon the rectitude of his judgment, he should, when left in the minority, politely and consistently retire from any further deliberation in the consultation, or participation in the management of the case.

§ 9. As circumstances sometimes occur to render a *special consultation* desirable, when the continued attendance of two physicians might be objectionable to the patient, the member of the faculty whose assistance is required in such cases should sedulously guard against all future unsolicited attendance. As such consultations require an extraordinary portion of both time and attention, at least a double honorarium may be reasonably expected.

§ 10. A physician who is called upon to consult, should observe the most honorable and scrupulous regard for the character and standing of the practitioner in attendance; the practice of the latter, if necessary, should be justified as far as it can be, consistently with a conscientious regard for truth, and no hint or insinuation should be thrown out which could impair the confidence reposed in him, or affect his reputation. The consulting physician should also carefully refrain from any of those extraordinary attentions or assiduities which are too often practiced by the dishonest for the base purpose of gaining applause, or ingratiating themselves into the favor of families and individuals.

ART. V.—*Duties of physicians in cases of interference.*

§ 1. Medicine is a liberal profession, and those admitted into its ranks should found their expectations of practice upon the extent of their qualifications, not on intrigue or artifice.

§ 2. A physician, in his intercourse with a patient under the care of another practitioner, should observe the strictest caution and reserve. No meddling inquiries should be made—no disingenuous hints given relative to the nature and treatment of his disorder; nor any course of conduct pursued that may directly or indirectly tend to diminish the trust reposed in the physician employed.

§ 3. The same circumspection and reserve should be observed when, from motives of business or friendship, a physician is prompted to visit an individual who is under the direction of another practitioner. Indeed, such visits should be avoided, except under peculiar circumstances; and when they are made, no particular inquiries should be instituted *relative to the nature of the disease, or the remedies employed*, but the topics of conversation should be as foreign to the case as circumstances will admit.

§ 4. A physician ought not to take charge of or prescribe for a patient who has recently been under the care of another member of the faculty in the same illness, except in cases of sudden emergency, or in consultation with the physician previously in attendance, or when the latter has relinquished the case, or been regularly notified that his services are no longer desired. Under such circumstances,

no unjust or illiberal insinuations should be thrown out in relation to the conduct or practice previously pursued, which should be justified as far as candor and regard for truth and probity will permit; for it often happens that patients become dissatisfied when they do not experience immediate relief, and, as many diseases are naturally protracted, the want of success, in the first stage of treatment, affords no evidence of a lack of professional knowledge and skill.

§ 5. When a physician is called to an urgent case, because the family attendant is not at hand, he ought, unless his assistance in consultation be desired, to resign the care of the patient to the latter immediately on his arrival.

§ 6. It often happens in cases of sudden illness, or of recent accidents or injuries, owing to the alarm and anxiety of friends, that a number of physicians are simultaneously sent for. Under these circumstances, courtesy should assign the patient to the first who arrives, who should select from those present any additional assistance that he may deem necessary. In all such cases, however, the practitioner who officiates should request the family physician, if there be one, to be called, and, unless his further attendance be requested, should resign the case to the latter on his arrival.

§ 7. When a physician is called to the patient of another practitioner, in consequence of the sickness or absence of the latter, he ought, on the return or recovery of the regular attendant, and with the consent of the patient, to surrender the case.

[The expression, "patient of another practitioner," is understood to mean a patient who may have been under the charge of another practitioner at the time of the attack of sickness, or departure from home of the latter, or who may have called for his attendance during his absence or sickness, or in any other manner given it to be understood that he regarded the said physician as his regular medical attendant.]

§ 8. A physician, when visiting a sick person in the country, may be desired to see a neighboring patient who is under the regular direction of another physician, in consequence of some sudden change or aggravation of symptoms. The conduct to be pursued on such an occasion is

to give advice adapted to the present circumstances; to interfere no further than is absolutely necessary with the general plan of treatment; to assume no future direction unless it is expressly desired; and, in this last case, to request an immediate consultation with the practitioner previously employed.

§ 9. A wealthy physician should not give advice *gratis* to the affluent; because his doing so is an injury to his professional brethren. The office of a physician can never be supported as an exclusively beneficial one; and it is defrauding, in some degree, the common funds for its support, when fees are dispensed with which might justly be claimed.

§ 10. When a physician who has been engaged to attend a case of midwifery is absent, and another is sent for, if delivery is accomplished during the attendance of the latter, he is entitled to the fee, but should resign the patient to the practitioner first engaged.

ART. VI.—*Of differences between physicians.*

§ 1. Diversity of opinion and opposition of interest may, in the medical as in other professions, sometimes occasion controversy and even contention. Whenever such cases unfortunately occur, and can not be immediately terminated, they should be referred to the arbitration of a sufficient number of physicians or a *court-medical.*

§ 2. As peculiar reserve must be maintained by physicians towards the public, in regard to professional matters, and as there exist numerous points in medical ethics and etiquette through which the feelings of medical men may be painfully assailed in their intercourse with each other, and which can not be understood or appreciated by general society, neither the subject-matter of such differences nor the adjudication of the arbitrators should be made public, as publicity in a case of this nature may be personally injurious to the individuals concerned, and can hardly fail to bring discredit on the faculty.

ART. VII.—*Of pecuniary acknowledgements.*

Some general rules should be adopted by the faculty, in every town or district, relative to *pecuniary acknowledge-*

ments from their patients; and it should be deemed a point of honor to adhere to these rules with as much uniformity as varying circumstances will admit.

OF THE DUTIES OF THE PROFESSION TO THE PUBLIC, AND OF THE OBLIGATIONS OF THE PUBLIC TO THE PROFESSION.

ART. I.—*Duties of the profession to the public.*

§ 1. As good citizens, it is the duty of physicians to be ever vigilant for the welfare of the community, and to bear their part in sustaining its institutions and burdens; they should also be ever ready to give counsel to the public in relation to matters especially appertaining to their profession, as on subjects of medical police, public hygiene, and legal medicine. It is their province to enlighten the public in regard to quarantine regulations; the location, arrangement and dietaries of hospitals, asylums, schools, prisons, and similar institutions; in relation to the medical police of towns, as drainage, ventilation, etc.; and in regard to measures for the prevention of epidemic and contagious diseases; and when pestilence prevails, it is their duty to face the danger, and to continue their labors for the alleviation of the suffering, even at the jeopardy of their own lives.

§ 2. Medical men should also be always ready, when called on by the legally constituted authorities, to enlighten coronors' inquests and courts of justice on subjects strictly medical—such as involve questions relating to sanity, legitimacy, murder by poisons or other violent means, and in regard to the various other subjects embraced in the science of Medical Jurisprudence. But in these cases, and especially where they are required to make a *post-mortem* examination, it is just, in consequence of the time, labor and skill required, and the responsibility and risk they incur, that the public should award them a proper honorarum.

§ 3. There is no profession by the members of which eleemosynary services are more liberally dispensed than the medical, but justice requires that some limits should be placed to the performance of such good offices. Poverty, professional brotherhood, and certain of the public duties referred to in the first section of this article, should always be recognized as presenting valid claims for gratuitous ser-

vices; but neither institutions endowed by the public or by rich individuals, societies for mutual benefit, for the insurance of lives or for analogous purposes, nor any profession or occupation, can be admitted to possess such privilege. Nor can it be justly expected of physicians to furnish certificates of inability to serve on juries, to perform militia duty, or to testify to the state of health of persons wishing to insure their lives, obtain pensions, or the like, without a pecuniary acknowledgment. But to individuals in indigent circumstances, such professional services should always be cheerfully and freely accorded.

§ 4. It is the duty of physicians, who are frequent witnesses of the enormities committed by quackery, and the injury to health and even destruction of life caused by the use of quack medicines, to enlighten the public on these subjects, to expose the injuries sustained by the unwary from the devices and pretensions of artful empirics and imposters. Physicians ought to use all the influence which they may possess, as professors in Colleges of Pharmacy, and by exercising their option in regard to the shops to which their prescriptions shall be sent, to discourage druggists and apothecaries from vending quack or secret medicines, or from being in any way engaged in their manufacture and sale.

ART. II.—*Obligations of the public to physicians.*

§ 1. The benefits accruing to the public, directly and indirectly, from the active and unwearied beneficence of the profession, are so numerous and important, that physicians are justly entitled to the utmost consideration and respect from the community. The public ought likewise to entertain a just appreciation of medical qualifications; to make a proper discrimination between true science and the assumptions of ignorance and empiricism; to afford every encouragement and facility for the acquisition of medical education—and no longer to allow the statute-books to exhibit the anomaly of exacting knowledge from physicians, under a liability to heavy penalties, and of making them obnoxious to punishment for resorting to the only means of obtaining it.

CONTENTS.

1883.

PAGE.

Address of Welcome 3
Assessments, no, for 1883 6
Frohsinn Hall 3
MILLER, A. C.,
Welcome Address 3
Report of Committee of Arrangements 5
VANCE, R. A.,
Report 5

1884.

ALLEN, H. P.,
Pupils in Diagnosis 87
Auxiliary Societies, list of 31
Auxiliary Societies, dropped 8
BALDWIN, J. F.,
Memorial 18–24
BEACH, W. M.,
Changes in Disease Types 119
Milk-Sickness 125
BOARD OF EXAMINERS—
Bill 12
Committee on Revision of 7
Sharp's resolution 11
Sharp's paper 75
Committee on 24
Reamy's amendment 18
Adoption of 23
Boroglyceride 139
Changes in Disease Types 119
Code of Ethics, to be printed 25
Collective Investigation of Disease 25
Congenital Phimosis 183
CONKLIN, W. J.,
Congenital Phimosis 183
Committees filled 6
DANDRIDGE, N. P.,
Foreign Bodies in the Urethra 161
Delaware County Society Controversy 7–29
DENMAN, W. C.,
Hydrocephalus 179
Drinking Water 189
Election of Officers 20
Empyema, radical operation 211
FORBES, S. F.,
Empyema 211
Foreign Bodies in Urethra 161

PAGE

GILL, H. Z.,
Rupture of Perineum 199
GREENE, D. W.,
Boroglyceride 139
Hydrocephalus, tapping 179
Indiana State Society, telegram 19
Irritation of Prostate 109
JONES, T. W.,
Report of 20
KINSMAN, D. N.,
Tuberculosis 43
LANDON, C. P.,
Opening Address 5
Closing Address 29
President's Address 35
LEWIS, E. C.,
Case of 21
List of Members 231
Milk-Sickness 125
New Members 26
Obituaries 223
Officers for 1884-5 3
Placenta, Delivery of 149
President's Address 35
Prostate, Irritation of 109
Publication Committee's report 10
Pupils in Diagnosis, etc 87
RANSOHOFF, J.,
Sanguineous Cyst of Neck 171
REED, R. H.,
Irritation of the Prostate 109
REEVE, J. C.,
Delivery of Placenta 149
REPORTS OF—
Secretary 7
Publication Committee 10
Treasurer 20
Committee on Ethics 21
Committee on Finance 24
Committee on Societies 28
Rupture of Perineum 199
Sanguineous Cyst of Neck 171
SCOTT, W. A.,
Resolution of 26
SCOTT, W. J.,
Drinking Water 189
Secretary's Report 7
SHARP, H. J.,
Board of Examiners 75
SUTTON, R. S.,
Discussion 11
THOMPSON, J. B.,
Resolution concerning 21
Tuberculosis 43
VANCE, R. A.,
Cataract 205
Vote of Thanks 25